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Review & Perspective

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KCEA Review and Forecast

by Charles W. Hultman*

As the national economy moves into the closing weeks of 1981, there are an increasing number of signs that another and perhaps more serious recession is underway even before full recovery from the 1980 recession. The national total unemployment rate reached a six-year high of 8.4 percent in November. The Composite Index of 12 Leading Indicators continued a generally downward trend beginning in early 1981, running through October. September sales of cars built by domestic producers fell to their lowest level in some 22 years. Even for imported cars, which represent about one-fourth of the domestic market, sales declined somewhat in November. Real Gross National Product grew sharply at an 8.6 percent annual rate during the first quarter of 1981, declined 1.6 percent during the second quarter, and grew only slightly during the third quarter.

Hope has been abandoned for balancing the federal budget by fiscal year 1984, and Administration economists now project a federal deficit for the present fiscal year exceeding $100 billion as compared with earlier estimates of $43 billion. They also now predict real or inflation-adjusted increases in GNP of 0.2 percent in calendar year 1982; 5.4 percent in 1983; and 5.2 percent in 1984. These predictions suggest that a relatively strong recovery will not occur until late 1982.

The Wharton Quarterly Model forecast (dated December 6, 1981) projects that real GNP will decline by slightly less than 0.5 percent in 1982. However, economic recovery would commence in the last part of 1982 and lead to an approximate 4 percent increase in real GNP in 1983. The 1983 expansion would be prompted particularly by a growth in durable goods expenditures and in residential construction. The unemployment rate would remain above 8 percent in both 1982 and 1983.

There is uncertainty about the degree of monetary ease that will develop because the recession's high unemployment is accompanied by continuing inflation. One first indication of possible developments was the recent decision by the Federal Reserve Board to reduce the discount rate from 13 percent to 12 percent. This rate, which is the rate regional federal banks charge on loans to financial institutions, will be at the lowest level since November 1980. In addition, there is evidence that mortgage interest rates have declined slightly.

Although most signs do not point to an early recovery at this time, there are a few promising developments. The November increase in the Producer Price Index for finished goods was small enough to suggest a possible abatement of inflationary pressures. The reduction of individual income tax rates (5 percent on October 1, and 10 percent scheduled for July 1, 1982) may favorably stimulate the economy.

Kentucky economic conditions continue to be influenced heavily by national developments. The seriously depressed conditions in the automotive and housing industries adversely affect many related sectors such as those producing durable appliances for new houses, equipment and supplies for construction, and components for new cars. In terms of labor unemployment, Kentucky's relative position has been less serious in 1981 than in 1980. The U.S. total and insured unemployment rates were 7.1 and 3.9 respectively in 1980, while the comparable rates for Kentucky were 8.1 and 5.3. But since August 1981, both of the Kentucky unemployment rates had been below the national level. Kentucky's September total unemployment rate of 6.6 percent was the first time in twenty-one months that it had fallen below 7 percent. Unemployment seems to have risen sharply in November, however, with the preliminary Kentucky data for the month showing a 9.2 percent rate, while the comparable U.S. rate was 8.4 percent.

Perhaps the most important variable in the months ahead will be the inflation rate, because the Reagan Administration appears to view inflation as a greater threat to the success of its economic program than unemployment. A significant decline in inflationary pressures will permit a greater degree of monetary ease and this, in turn, should facilitate greater activity in the automotive and related industries and in construction.

The first quarter of 1982 is not expected to be a promising one for Kentucky, particularly as unemployment rises in a usual seasonal pattern. Although the employment and income picture should improve because of seasonal factors in the months thereafter, it is expected that no major recovery can occur until there is significant improvement in the performance of the national economy.

Charles W. Hultman is the Chairman of the KCEA.

We are pleased to announce that pending approval of the University of Kentucky Board of Trustees, Professor Don M. Soule has been named Acting Executive Director of the Kentucky Council of Economic Advisors and Acting Director of the Center for Applied Economic Research. Professor Soule brings a wide range of experience to this position, perhaps the most relevant of which is his extensive knowledge of governmental finance, as well as of the Kentucky economy in general.

He received his doctorate in Economics from the University of Wisconsin-Madison, and has been a member of the Department of Economics at the University of Kentucky since 1959, except for a brief period in the mid-1960s when he was Director of Research and Statistics, Kentucky Department of Labor. In 1979, as a tribute to the work Dr. Soule has done to promote economic analysis of the Commonwealth of Kentucky, the Kentucky Economic Association presented him with its annual "Outstanding Kentucky Economist" award.

The Kentucky Council of Economic Advisors is most grateful that Dr. Soule has agreed to assume this position and we look forward to benefiting from his insights and direction.

* * *

The KCEA has released *Policy Paper* No. 11, "Tax Options for Kentucky State Government," by Stephen E. Lile, Professor of Economics, Western Kentucky University. In his study, Professor Lile reviews what is currently known about the Kentucky tax system and discusses options for additional tax revenues. The latter part of his full study has been condensed in an article that begins on page 6 of this issue. Single copies of *Policy Paper* No. 11 are available, upon request, by writing the KCEA, 451 Commerce Building, University of Kentucky, Lexington, KY 40506. There is no charge to persons in governmental agencies, academic institutions, or to others in the non-profit sector; there is a charge of $5.00 to all others.

* * *

The KCEA is also accepting orders for the *Kentucky Council of Economic Advisors Annual Report–1981*, which is now in the final stages of preparation. In addition to articles on the national and Kentucky economies, this year's edition includes studies on state taxation by Don Soule, on state long-term indebtedness by Richard Sims, on Appalachian Kentucky by Bernard Davis and Douglas Dotterweich, and on unemployment insurance by Charles Hultman. As with the *Policy Paper*, there will be no charge for single copies of the *Annual Report* to those in the nonprofit sector; there is a charge of $10.00 to all others.

* * *

The database of the Frankfort version of the Kentucky Economic Information System (KEIS) has been significantly expanded during the past quarter. Data newly available include over 600 series on Kentucky individual income and property taxes from the Department of Revenue's *Annual Report*, 1951-1979; over 100 series related to output and value of fuel and nonfuel Kentucky mineral production, 1951 to the most current data; and over 100 series related to coal shipments to and from Kentucky, 1957 to the most current data.

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Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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The Importance of Federal Aid to the Kentucky Economy

Don M. Soule*

Federal government expenditures may directly affect a state economy in three important ways: purchases of goods and services produced in the state boost employment and income; aid to state and local governments (intergovernmental aid) allows lower taxes or higher expenditures; and aid to individuals and businesses (transfer payments) supplements other income. The Reagan administration's proposed remodeling of federal expenditures would tend to increase purchases of goods and services while reducing the two groups of aid programs. Insofar as the increased purchases of goods and services are defense-related, Kentucky stands to lose because its industry mix is not defense-oriented. It is mainly, however, the proposed reduction in federal aid expenditures that has the greatest potential for harm to the Kentucky economy. The following discussion assumes there will be a reduction in federal aid expenditures to state and local governments and also to individuals and businesses, although the legislation to do this has yet to be fully enacted or implemented.

Reduced federal intergovernmental aid presents state-local governments with two choices: either reduce their expenditures, or replace the lost federal aid with increased revenue from their own taxes and charges. Insofar as it is determined that expenditures cannot be reduced, the Kentucky revenue system would need to produce additional revenue equivalent to the relative importance of federal aid in state-local budgets. In fiscal year (FY) 1979-80, federal aid to Kentucky was $1,349.8 million, or 36.7 percent of the size of "own-source" revenue, which was $3,682.4 million.[1] The all-state amount for this comparison was 27.7 percent.

The potential damaging effect of federal intergovernmental aid reductions is suggested by relating several percentage reductions in federal aid to total own-source revenue of Kentucky state-local goverments for FY 1979-80. Total Kentucky state-local tax revenue was $2,709.3 million and nontax revenue $973.1 million, or a total of $3,682.4 million of general revenue from own sources. Federal aid reductions to the FY 1979-80 amount of $1,349.8 million by 10, 20, and 30 percent would have been $134.98 million, $269.96 million, and $404.94 million, respectively. Table 1 shows percentage

TABLE 1

Federal Aid Reductions	Percent of Own-Source Revenue
10%	3.7%
20	7.3
30	11.0

SOURCE: Author's computations from data in *Governmental Finance in 1979-80* (U.S. Bureau of the Census).

Don M. Soule is Professor of Economics, University of Kentucky.

KENTUCKY ECONOMIC INFORMATION SYSTEM

STANDARDIZED TABLE 6

KENTUCKY ANNUAL ECONOMIC DATABANK

TRANSFER PAYMENTS TO KENTUCKIANS, BY PROGRAM

SERIES		1976	1977	1978	1979	1980
116	INCOME, TRANSFER PAYMENTS	2696.28	3075.45	3275.80	3778.34	4500.42
244	INCOME, TRANSFER PAYMENTS, TOTAL GOVT PAYMENTS TO INDIVIDUAL CIVILIANS	2404.63	2572.28	2729.83	3194.46	3867.52
245	INCOME, TRANSFER PAYMENTS, RETIREMENT, DISABILITY & HEALTH INSURANCE PAY	1785.86	1975.27	2166.06	2524.38	2915.27
246	INCOME, TRANSFER PAYMENTS, OLD AGE,SURVIVORS,DISABILITY INSURANCE PAY	1139.01	1265.70	1390.94	1563.65	1814.23
247	INCOME, TRANSFER PAYMENTS, PAY. TO RET. + DISABLED RAILROAD BENE. + SURV	84.42	88.80	92.60	99.03	109.88
248	INCOME, TRANSFER PAYMENTS, FEDERAL GOVERNMENT EMPLOYEES RETIREMENT PAY	101.21	114.63	130.17	148.51	171.87
249	INCOME, TRANSFER PAYMENTS, STATE & LOCAL GOVERN. EMPLOY. RETIREMENT PAY.	90.19	102.61	117.78	131.05	144.63
250	INCOME, TRANSFER PAYMENTS, MEDICAL INSURANCE PAYMENTS	225.87	260.84	290.54	351.09	421.16
251	INCOME, TRANSFER PAYMENTS, WORKMEN'S COMPENSATION PAYMENTS	38.35	35.99	38.54	45.39	47.42
252	INCOME, TRANSFER PAYMENTS, BLACK LUNG	106.81	106.70	115.48	144.86	199.74
254	INCOME, TRANSFER PAYMENTS, UNEMPLOYMENT INSURANCE PAYMENTS	178.91	149.03	148.51	171.07	241.16
255	INCOME, TRANSFER PAYMENTS, UNEMPLOYMENT INSURANCE PAYMENTS (XCL. VETERAN	170.64	142.08	124.31	165.99	235.21
256	INCOME, TRANSFER PAYMENTS, STATE UNEMPLOYMENT INSURANCE PAYMENTS	162.13	132.79	112.11	153.74	296.80
257	INCOME, TRANSFER PAYMENTS, UI PAY TO FED. GOVT CIVILIAN EMPLOYEES (UCFE)	3.78	4.46	4.76	4.12	4.99
258	INCOME, TRANSFER PAYMENTS, UNEMPLOYMENT INSURANCE PAY TO RAILROAD EMPLOY	4.01	4.17	4.82	3.04	5.80
259	INCOME, TRANSFER PAYMENTS, UNEMPLOYMENT INSURANCE PAYMENTS FEN. VETS(UCX)	6.27	6.95	7.20	5.08	5.99
260	INCOME, TRANSFER PAYMENTS, TRADE ADJUSTMENT ASSISTANCE PAYMENTS	0.72	0.64	2.63	3.04	26.40
261	INCOME, TRANSFER PAYMENTS, OTHER JOBLESS BENEFITS	0.0	0.01	0.49	2.01	2.25
262	INCOME, TRANSFER PAYMENTS, EDUCATIONAL & TRAINING ASSISTANCE PAYMENTS	22.56	30.16	34.53	40.25	56.96
263	INCOME, TRANSFER PAYMENTS, INCOME MAINTENANCE PAYMENTS	417.17	416.67	400.24	454.33	551.69
264	INCOME, TRANSFER PAYMENTS, SUP SEC INC PAY(FWD)AID TO AGD,BLND & DISA	126.39	130.41	135.19	146.68	163.43
265	INCOME, TRANSFER PAYMENTS, PAY. TO FAMILIES WITH DEPENDENT CHILDREN	138.30	138.57	114.70	123.03	136.96
267	INCOME, TRANSFER PAYMENTS, EMERGENCY ASSISTANCE	0.38	1.12	3.14	6.94	3.25
268	INCOME, TRANSFER PAYMENTS, FOOD STAMPS-(ENUS. VAL.81-7R, FACE VAL.79 FWD	128.61	125.85	128.20	160.94	221.46
269	INCOME, TRANSFER PAYMENTS, OTHER ASSISTANCE PAYMENTS	21.44	20.41	19.06	17.65	25.06
270	INCOME, TRANSFER PAYMENTS, OTHER TRANSFER PAYMENTS TO INDIVID CIVILIANS	0.13	0.45	0.48	0.94	7.53
271	INCOME, TRANSFER PAYMENTS, GOVT. PAY. TO RET. MILITARY, VETS + THEIR DEP	324.71	328.82	342.23	368.22	398.22
272	INCOME, TRANSFER PAYMENTS, PENSIONS, RETIREMNT, TERM.LVE + MUSTERING OUT	247.70	267.56	285.18	313.86	344.21
273	INCOME, TRANSFER PAYMENTS, VETERANS' PENSIONS & COMPENSATION PAYMENTS	163.94	177.71	186.50	203.60	214.82
274	INCOME, TRANSFER PAYMENTS, MILITARY RETIREMENT PAYMENTS	83.76	89.85	98.68	110.26	129.41
276	INCOME, TRANSFER PAYMENTS, EDUCAT. PAY. TO VETERANS, DEPENDENTS, + SURV.	64.71	48.25	42.64	36.88	34.04
277	INCOME, TRANSFER PAYMENTS, GOVT LIFE INS PEN PAY INC MIL & NAVY INS PAY	9.38	9.79	11.09	13.88	16.48
278	INCOME, TRANSFER PAYMENTS, OTHER GOVT. PAY. TO VET., PUM'S/SURV. OF VETS	2.91	3.12	3.33	3.40	3.40
279	INCOME, TRANSFER PAYMENTS, PAYMENTS TO NONPROFIT INSTITUTIONS	79.03	82.42	105.18	106.91	116.57
280	INCOME, TRANSFER PAYMENTS, BUSINESS TRANSFER PAYMENTS	87.92	91.93	98.56	108.95	120.61

UNITS: MILLIONS OF CURRENT DOLLARS

SOURCE: U.S. BUREAU OF ECONOMIC ANALYSIS

increases of own-source revenue required by such reductions in order to maintain state-local revenues at a level comparable to that of FY 1979-80. Information is not available at this time to estimate the likely extent of proposed federal aid reductions to state-local governments in FY 1981-82. The figures in Table 1 are used simply to suggest the possible importance of federal aid reductions.

Federal aid to individuals and businesses is a major part of the "transfer payments" portion of total personal income.[2] Total transfer payments to Kentuckians were $4,139.63 million for FY 1979-80 (estimated from average of two calendar years). Kentucky personal income would have been reduced substantially if federal transfer expenditures had been cut. To begin to illustrate this, the historic annual data for Kentucky residents' receipts of transfer payments are shown in Figure 1. For 1980, total government transfer payments were about 86 percent of total transfers, but part of the governmental portion was nonfederal. The portion of total transfer payments that are from federal expenditures is difficult to estimate, but in the following comparison the federal portion is assumed to be 60 percent.

Reduced federal transfer payments could affect the Kentucky economy in several ways: total personal income could fall insofar as federal aid reductions exceed federal tax reductions for Kentuckians; state-local revenue laws might need to be revised upward to finance programs formerly supported by federal aid; or other state-local government expenditure programs might need to be reduced to release funds for the programs formerly financed from federal aid. These possibilities suggest the following comparisons.

If federal expenditures were 60 percent of total transfer payments, federal transfer payments were 9.7 percent of Kentucky personal income in calendar year 1980. Relative to Kentucky state-local government own-source revenue, federal transfer payments were 67.4 percent in FY 1979-80. The relation of reductions in federal transfer payments to Kentucky governmental own-source revenue are shown in Table 2, assuming 10, 20, and 30 percent reductions in federal transfer expenditures.

TABLE 2

Reductions of Federal Transfer Payments	Percent of Own-Source Revenue
10%	6.7%
20	13.5
30	20.2

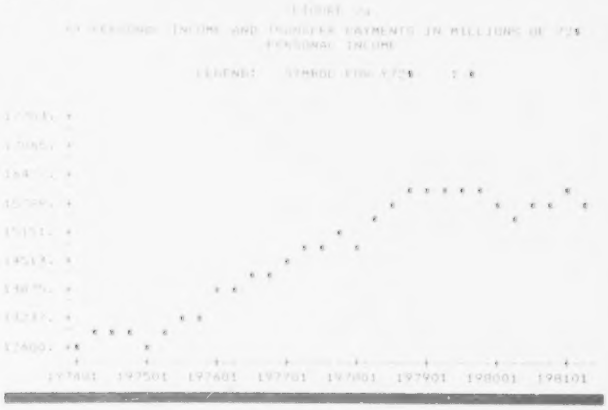
SOURCE: Author's computations from data in *Governmental Finances in 1979-80* (U.S. Bureau of the Census).

Using the comparisons for both intergovernmental aid and transfer payments, an answer can be suggested to the question: What is the relative size of a 10 percent reduction in total federal aid expenditures compared with Kentucky state-local government own-source revenue? A 10 percent reduction in federal intergovernmental aid would equal about 3.7 percent of Kentucky own-source revenue, and a 10 percent reduction in federal transfer expenditures would be about 6.7 percent, for a total importance of 10.4 percent. As a rough estimate, a 10 percent reduction in the two federal aid programs combined would be in the magnitude of 10 percent of Kentucky state and local government revenue from their own tax and nontax sources.

These comparisons suggest that own-source revenue would need to be increased about 10 percent if state-local government expenditures from own-source revenue were to replace the total amount of reduction in federal transfer payments to individuals and businesses and in federal aid to state-local governments. Similarly, 20 percent and 30 percent reductions in federal aid expenditures would require 20 percent and 30 percent increases in Kentucky own-source revenue. While actual size of the proposed federal reductions is not known at this time, the above computations indicate that cuts of only 10 percent could have very important effects on Kentucky relative to state-local government revenue and total personal income.

Another important dimension of the proposed reductions in federal aid expenditures is their possible occurrence during a time of depressed economic activity. Federal aid expenditures typically move counter to the business cycle, tending to offset the upturns and downturns in employment and income. Kentucky's economic condition would have been worse in the last several years if not for the offsetting effects of increased federal aid expenditures.

The relative importance of transfer payments to total Kentucky personal income can be illustrated by plotting quarterly Kentucky data for the period from the first quarter of 1974 to the second quarter of 1981, the most recent quarter for which these data are available (Figures 2a and 2b). Total transfer payments and total personal income, have both been transformed into dollars of constant (1972) purchasing power.[3]



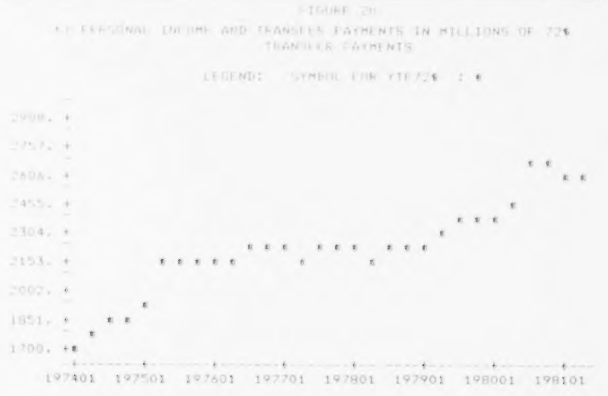
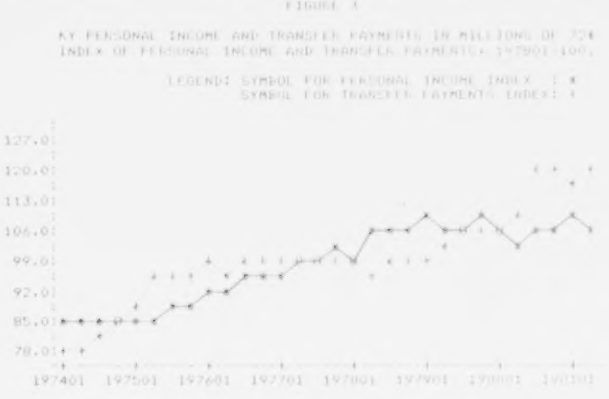


Illustration of quarterly changes is simplified by the method of computing indexes based on a particular quarter. Specifically, transfer payments for each quarter (at annual rates) are expressed as percentages of the first quarter 1978 value. The value for this quarter thereby becomes 100, and other quarterly amounts fluctuate around 100. Similar computations are made for total personal income. These two index series are illustrated by the plot in Figure 3. Note the off-



setting fluctuation of transfer payments, the high level of the transfer payment index in the 1980-81 period, and the plateau or slight decline in the personal income index since 1978. These data show that reducing federal aid expenditures during a period of depressed economic conditions could have especially harsh effects.

Notes

[1]Data for personal income, transfer payments, and governmental revenue are from *Governmental Finances in 1979-80* (U.S. Bureau of the Census), and the Bureau of Economic Analysis, U.S. Department of Commerce through the Kentucky Economic Information System.

[2]Personal income is defined as private and government wage and salary payments in cash and in kind, other labor income, farm and nonfarm proprietors' income, personal interest income, rental income of persons, dividends, and transfer payments, less personal contributions for social insurance. It is measured before the deduction of personal income tax and other personal taxes.

[3]The deflator used was the GNP Implicit Price Deflator for Personal Consumption Expenditures, as estimated by the Bureau of Economic Analysis, U.S. Department of Commerce.

(Editor's Note:) Two of the articles in this issue raise the spectre of the need for raising Kentucky state government revenues. In this context we assume that the 1982 Kentucky General Assembly may give some consideration to the coal severance tax, as one of several alternative business tax options. We have therefore asked Curtis E. Harvey, a specialist in coal economics, for a general statement concerning the Kentucky coal severance tax, especially as it relates to the market for eastern Kentucky coal. The following article summarizes his general ideas.

Coal Tax Uniformity for Appalachia

by Curtis E. Harvey*

In a period when a general economic decline is coupled with reductions in federal aid to state and local governments, new sources of revenue to fund at least some of the basic state and local governmental services that would otherwise have to be eliminated are sought with increased fervor. A variety of revenue-raising plans are certain to be proposed. Under such circumstances, and where there is a significant minerals industry, states frequently consider raising severance taxes.

Among the reasons severance taxes seem to be a popular vehicle for increasing revenues is that raising these taxes does not necessarily affect the amounts paid by businesses or residents of the state. For many commodities, an increase in the tax may be exported, if not entirely, at least in large part, to out-of-state consumers. Severance taxes are predicated on the premise that the severance of a natural resource from its environs results in an irretrievable loss, so that taxing this transaction recovers at least some of the value of the natural resource for the residents of the state. They are also viewed as providing a way to compensate state and local governments for costs they incur in support of the mineral industry.[1]

When the costs of severing a particular mineral are approximately equal among states, and when the quality of the mineral is relatively homogeneous, the unilateral imposition of an increase in a severance tax in one state typically raises the cost of production in that state. If the consumers of the mineral have a variety of supply sources (states) from which to choose, a shift in sales from states where the severance of the mineral is taxed more heavily to states with a lower tax rate may develop.

Assuming that prospective federal budget plans are enacted, all states of the Appalachian coal basin, including Kentucky, will suffer in the coming months from a reduction in funds received from the federal government, and may look to the coal severance tax as a vehicle for raising additional revenues. But before they do, it seems to me, it would be in the interest of each of these states to encourage their governors to meet and collectively examine the question of a uniform modest increase in the tax rate. Additional revenues could be raised

(continued on the top of page 15)

*Curtis E. Harvey is Professor of Economics, University of Kentucky.

What Are Kentucky's Tax Policy Options?

by Stephen E. Lile*

The KCEA has recently released the eleventh in its series of Policy Papers, *a study by Professor Stephen E. Lile entitled "Tax Options for Kentucky State Government." Because we feel that the analysis of this paper warrants widespread distribution, the editor has collaborated with the author to condense the third part of the* Policy Paper *into the following article. For further information about the* Policy Paper, *please refer to the "News & Notes" column of this issue.*

The decline in General Fund revenue growth during fiscal year (FY) 1980-81 resulted in dramatic reductions in agency appropriations throughout Kentucky state government in the current biennium. Whether the shortfall in revenues continues will depend upon the performance of the Kentucky economy as well as upon the magnitude of reductions in federal funds allocated to Kentucky.

At this writing, the severity of the revenue situation for FY 1981-82 is unclear. As reported in the September 1981 issue of this publication, the Kentucky Department of Revenue projected a General Fund revenue growth rate for FY 1981-82 of 6.8 percent, while the revenue growth forecast made on behalf of the Legislative Research Commission was for an increase of 9.7 percent.[1] As the data reported on page 9 of this issue show, General Fund revenues for the first quarter of FY 1981-82 were 10.5 percent above the comparable receipts for the first fiscal quarter a year ago, even after payment of $18.96 million of individual income tax refunds in July 1981. It should be borne in mind that at the end of September 1980, General Fund revenues were running 17.6 percent ahead of the comparable period in 1979 (income tax refunds had been paid the previous quarter that year), but fell to a growth rate of only 6.3 percent by the end of fiscal 1980-81. In addition, the decline in the national economy during the second quarter of FY 1981-82 has been more severe than previously anticipated, and the effect of this decline on the Kentucky economy has not yet been fully realized.

Should Kentucky's revenues lag behind what is considered an essential growth rate or should cuts in federal programs cause essential services to be unfunded, the 1982 Kentucky General Assembly may need to consider options for increasing Kentucky state taxes. The following article discusses some of these alternatives.

Proposals to alter existing taxes or to enact new ones should be evaluated with respect to their likely effect on revenue adequacy, tax equity, the state's ability to expand its tax base by attracting new business, and simplicity or administrative feasibility. Political acceptability is another obvious consideration but is beyond the scope of this article. It is generally necessary for policy makers to make trade-offs among these principles. For example, the objective of revenue adequacy may suffer from attempts to make the tax distribution more equitable. Many of the tax revisions enacted during the past decade were designed to reduce sales tax regression but had the additional effect of either reducing revenues or of altering revenue responsiveness to the business cycle.[2] Another example involves business taxes and revenue adequacy. Increased taxation of business is an attractive option because much of the tax burden is likely to be exported to taxpayers who live in other states. But at some point, increases in the tax load on business may be counterproductive if the higher taxes adversely affect the size of the tax base.

Kentucky's tax effort—total state and local tax collections as a percent of state personal income—is approximately 94 percent of the national average.[3] The tax burden on hypothetical families residing in Louisville and in other large Kentucky cities, however, is somewhat above average.[4] An important reason for this paradox is the fact that Kentucky derives a smaller share of its tax revenues from business taxes as compared to other states. This may be due to below average tax levies on business, to a narrow business tax base relative to state personal income, or to a combination of the above. The following discussion omits business taxes from the list of available tax options only because the author believes that too little is presently known about either how Kentucky's business tax structure and level compare to that of other states or about the likely effect of an increase in Kentucky business taxes on the business tax base. The tax options that are discussed include the property tax, the individual income tax, the cigarette excise tax, alcoholic beverage taxes, and the sales tax.

Property tax. It is logical to include the property tax in any list of tax options because this is clearly the most underutilized tax in Kentucky. A recent study showed that an additional $422 million could have been raised from the Kentucky property tax in 1979, if it had been utilized at an average of the level of the neighboring states.[5] Additional revenue could also be raised from stricter enforcement of the tax on personal property, both tangible and intangible. Lack of taxpayer compliance with or even awareness of, the intangible tax, appears widespread. The tax on tangible personal property, particularly business inventories, could also be increased if present tax rates were enforced more vigorously. But any substantial increase in property tax revenues must involve the real estate tax and this is presently limited to revenue increases of only 4 percent per year. Therefore, a prerequisite for a major increase in property tax utilization would require legislation rescinding House Bill 44, enacted by the 1979 Special Session of the Kentucky General Assembly.

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Increased property tax utilization might be made more politically acceptable by improved assessment administration but the role that assessment quality plays in forming taxpayer attitude is unclear. On the one hand, it is not surprising that the property tax is unpopular nationally, given the assessment variations that often exist among similar properties. While assessment quality in Kentucky is believed to be better than in most other states, there are undoubtedly many instances where property is reassessed only infrequently unless sold. In such cases a major determinant of a homeowner's assessment is how recently the property was purchased. This is clearly unfair and contributes to property tax unpopularity. The major factors that may work against greater property tax utilization in Kentucky are tradition and the fact that efforts to increase the role of the property tax would run counter to the national trend.

Individual income tax. Estimates of 1980 effective state income tax rates made by the federal Advisory Commission on Intergovernmental Relations and shown in Table 1 indicate that Kentucky families with incomes below $25,000 pay an above average amount in income tax whereas families with incomes above $25,000 pay less than the national average.

TABLE 1

EFFECTIVE RATES OF STATE PERSONAL INCOME TAXES FOR SELECTED ADJUSTED GROSS INCOME LEVELS, MARRIED COUPLE WITH TWO DEPENDENTS, KENTUCKY, THE SOUTHEAST REGION, AND THE U.S., 1980*

Adjusted Gross Income Level	$10,000	$15,000	$17,500	$20,000	$25,000	$50,000	$75,000	$100,000
Kentucky Rate	2.6	1.9	2.3	2.6	3.0	3.3	3.2	3.1
Average Rate for the Southeast Region	1.4	1.3	1.6	2.0	2.5	3.5	3.8	4.0
Average Rate for the U.S.	1.0	1.4	1.8	2.0	2.3	3.8	4.0	4.5

*Based upon tax liability on income earned during calendar year 1980.

SOURCE: Advisory Commission on Intergovernmental Relations, *Significant Features of Fiscal Federalism*, 1980-81 Edition, M-132 (Washington, D.C.: ACIR, January 1982), forthcoming.

If the decision were made to further utilize the individual income tax, it could be done in either or both of two major ways. First, the deduction of federal income tax, which is presently allowed in computing Kentucky gross income, could be eliminated. This would increase Kentucky income tax owed by all income groups, but the major effect would be on higher income persons because it is they who pay by far the largest amount of federal tax. This change would thus increase revenue and serve to make the Kentucky income tax more progressive. In order to make this change politically acceptable, it would be important to publicize that such a change would increase the combined federal-state income tax burden on high income persons only slightly because the state income tax is deductible under the federal income tax.

The second major income tax change would involve revising the individual income tax rate schedule. It was last revised in 1950. The present maximum tax rate is 6 percent and this rate applies to taxable income in excess of $8,000. In 1950, $8,000 represented a fairly substantial income and this top rate applied to relatively few taxpayers. But in 1981 most taxpayers have taxable incomes above $8,000, and they pay the same 6 percent marginal tax rate. An unchanged rate schedule combined with income growth has made the Kentucky income tax less progressive than formerly. A rate schedule revision that added one or more rates at higher income levels would therefore increase income tax revenues and progressivity. The Kentucky Department of Revenue would be able to estimate the revenue effect of any particular revision in rates.[6]

Cigarette excise tax. The same 1979 study cited above related to comparative property tax rates estimated that Kentucky could have raised approximately $30 million in additional revenue from taxes on tobacco products, assuming a tax effort which was the average of the tax of neighboring states.[7] The cigarette excise is the major tax levied on tobacco products in Kentucky. Kentucky's 3 cent cigarette tax can be placed in perspective by comparing it with rates levied in other states. The average rate for all states in 1980 was 13 cents and fourteen states in 1980 levied a rate in excess of 16 cents. The rates used in neighboring states in 1980 were 2½ cents in Virginia, 13 cents in Tennessee, 9 cents in Missouri, 10½ cents in Indiana, 12 cents in Illinois, and 17 cents in West Virginia.[8]

The principal reason why Kentucky's rate has not been increased is concern over the effect that an increase would have on the tobacco industry and particularly on tobacco farming in Kentucky. This is an understandable concern given the importance of the tobacco industry in Kentucky. A proposal to increase a *national* cigarette tax could be expected to reduce cigarette sales noticeably with a resulting decrease in the demand for Kentucky tobacco. But this is not the option proposed here. What is proposed is an increase in the tax levied only in Kentucky, which accounts for less than 2 percent of all cigarette consumption nationally. The major effect would be to reduce the quantity of cigarettes sold in Kentucky for consumption in other states. Presently, Kentucky's sales of cigarettes are far above the national average on a per capita basis because of sales to tourists and because of assumed illegal shipment of cigarettes bought in Kentucky for sale in high tax states.

The important point to remember is that the welfare of the Kentucky tobacco farmer is dependent upon the total quantity of cigarettes sold nationally and not upon whether more or less is sold in Kentucky.[9] The revenue that could be anticipated from a rate of, say, 12 cents per pack would be somewhat less than four times present revenues because some decrease in sales to out-of-state consumers could be expected to occur. Cigarette tax revenues for fiscal year 1980-81 were $21.8 million.

(continued on page 14)

selected indicators OF ECONOMIC A

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	July 1981	Aug. 1981	Sept. 1981	Qtr. III 1981	% Chg. 81-II 81-III	% Chg. 80-III 81-III
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U): ALL ITEMS	274.80	276.20	279.20	276.73	2.96	10.84
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U): FOOD AND BEVER	268.90	270.10	270.70	269.96	1.52	9.32
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U): HOUSING	297.00	299.70	303.70	300.13	4.03	12.75
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U): APPAR & UPKEEP	184.20	187.40	190.70	187.60	0.05	4.08
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U): TRANSPORTATION	282.60	285.70	285.00	283.83	2.27	13.28
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U): MEDICAL	295.60	299.50	301.70	298.87	3.35	11.30
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U): ENTERTAINMENT	221.10	223.40	224.00	222.47	1.08	8.89
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U): OTHER	234.40	240.60	243.00	239.67	2.52	9.93
CONSUMER PRICE INDEX (CPI-U): SPECIAL INDEX: ENERGY	415.70	416.10	417.10	416.30	1.12	12.19
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL FINISHED GOODS	271.30	271.20	271.10	271.20	0.60	8.18
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	272.00	272.60	272.60	272.67	0.44	7.65
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	308.60	309.90	309.60	309.37	0.91	9.03
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	285.80	289.60	290.20	288.53	1.24	7.66
PRODUCER PRICE INDEX, CRUDE MATERIALS	336.20	344.90	327.70	332.37	-0.09	6.01
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	267.00	261.80	252.40	260.73	-0.79	4.24
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL+SPOT(1967=100)	432.60	434.20	436.40	434.40	0.02	9.46
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL+CONTRACT(DEC75=100)	142.10	142.50	141.20	142.60	1.06	7.16
CONSUMER EXPEND: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	19.68	19.84	20.51	19.91	4.77	15.08
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	45.42	45.92	47.86	46.37	5.75	13.91
AVG PRICE FOR ELECTRICITY, PER 500 KWH	35.74	36.50	36.27	36.17	7.53	14.42
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.25	1.25	1.24	1.25	1.84	22.01
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.35	1.35	1.36	1.35	1.31	9.08
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.31	1.31	1.30	1.31	1.72	8.47
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.38	1.38	1.38	1.38	1.64	8.93
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.45	1.44	1.46	1.45	0.05	10.84
LABOR FORCE (SEASONALLY ADJUSTED)						
LABOR FORCE, CIVILIAN (MILLIONS)	106.46	106.60	106.24	106.43	-0.31	1.38
EMPLOYMENT, TOTAL (MILLIONS)	98.96	98.94	98.27	98.73	-0.14	1.72
EMPLOYMENT, AGRICULTURE	3.26	3.37	3.31	3.31	-1.42	0.63
EMPLOYMENT, NONAGRICULTURAL INDUSTRIES	95.70	95.57	94.96	95.41	-0.10	1.75
UNEMPLOYMENT RATE, TOTAL	7.30	7.20	7.50	7.23	-2.35	3.98
UNEMPLOYMENT RATE, BLACKS & OTHER RACIAL MINORITIES	13.60	15.00	15.10	14.57	6.39	4.80
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT ($ B $) (% CHG AT ANNUAL RATE)	NA	NA	NA	2956.60	10.10	12.11
U.S. REAL GROSS NATIONAL PRODUCT ($ B 72$) (% CHG AT ANNUAL RATE)	NA	NA	NA	1512.80	0.63	2.78
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED ($ B $)	2418.80	2444.20	2462.40	2441.80	12.97	11.90
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	134.40	133.70	130.10	132.73	-2.09	1.27
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	153.90	153.60	151.80	153.10	0.39	7.59
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	14.70	15.61	14.95	15.09	1.73	61.36
PRIVATE HOUSING UNITS AUTH, 16000 PERMIT-ISSUING PLACES (SAAR THOU)	915.00	865.00	850.00	2628.00	-60.55	35.98
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH ($ B)	320.89	324.85	328.30	324.61	2.80	6.25

ACTIVITY

KENTUCKY DATA

	July 1981	Aug. 1981	Sept. 1981	Qtr. III 1981	% Chg. 81-II 81-III	% Chg. 80-III 81-III
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1680.90	1665.40	1665.60	1663.67	1.44	1.14
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1548.80	1548.80	1555.70	1547.77	2.33	2.97
EMPLOYMENT, AGRICULTURAL	78.20	80.00	84.60	78.33	13.97	-2.65
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1470.60	1468.80	1470.90	1469.43	1.70	3.29
UNEMPLOYMENT RATE	7.20	7.10	6.60	6.97	10.44	19.20
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1188.70	1189.40	1199.80	1192.13	0.80	-0.69
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	42.70	43.90	40.50	40.03	25.52	0.70
EMPLOYMENT, CONTRACT CONSTRUCTION	58.50	58.70	58.20	58.47	5.54	-7.00
EMPLOYMENT, TOTAL MANUFACTURING	272.60	273.60	275.80	273.40	-0.25	1.88
EMPLOYMENT, MANUFACTURING, DURABLE	152.40	152.30	156.50	153.73	-1.87	2.95
EMPLOYMENT, MANUFACTURING, NON-DURABLE	120.20	119.50	119.30	119.67	0.73	0.53
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	66.90	67.40	67.20	67.17	0.00	-2.28
EMPLOYMENT, WHOLESALE & RETAIL TRADE	257.70	256.60	256.40	256.90	0.68	-0.22
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	53.30	52.80	52.40	52.83	0.33	0.70
EMPLOYMENT, SERVICES (SIC 70-89)	212.40	212.60	211.50	212.17	0.30	0.87
EMPLOYMENT, CIVILIAN GOVERNMENT	214.50	215.40	224.20	218.03	5.66	4.01
EMPLOYMENT, STATE & LOCAL GOVERNMENT	169.90	170.70	179.40	173.33	7.46	4.25
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	38.90	38.70	39.00	39.03	1.93	1.65
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	38.60	38.30	38.70	38.87	3.56	1.75
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	39.10	39.20	39.50	39.27	0.26	1.46
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	7.87	7.91	8.05	7.94	5.62	6.91
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	8.49	8.41	8.77	8.62	2.25	7.94
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	7.09	7.04	7.13	7.09	1.58	5.09
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	310.08	306.17	313.95	310.05	8.34	8.85
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	336.20	326.78	339.40	335.12	5.39	9.85
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	277.22	276.57	281.64	278.54	1.04	6.82
INDEX OF PRICES RECEIVED BY KY FARMERS (1972=100)						
INDEX OF PRICES REC'D BY KY FARMERS, CROP AND LIVESTOCK PRODUCTS	180.15	178.02	178.42	179.13	-1.16	5.03
INDEX OF PRICES REC'D BY KY FARMERS, LIVESTOCK PRODUCTS	155.19	151.95	151.35	152.83	-3.38	8.90
INDEX OF PRICES REC'D BY KY FARMERS, CROPS	195.83	195.30	195.43	195.65	0.13	13.44
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	10.15	11.15	11.31	32.62	47.63	24.99
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	4.53	4.76	4.28	13.57	147.04	37.41
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	13.22	13.08	12.67	12.76	7.98	13.96
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	634.24	653.90	614.66	600.94	22.63	42.37
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	42.00	50.30	48.90	47.07	14.05	24.73
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	17.00	19.00	21.98	58.00	*	36.18
CONSTRUCTION (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	340.30	154.80	126.40	621.50	35.80	29.86
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1-FAMILY RESID. UNITS	358.00	375.00	263.00	996.00	26.17	-53.17
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1-FAMILY RESID. UNITS	15.71	14.99	11.88	42.58	31.03	-53.96
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	861.00	793.00	560.00	2014.00	-16.05	-41.44
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL RESID. UNITS, TOTAL	25.86	30.54	18.95	73.36	-18.34	-39.67
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	60.52	60.82	64.04	185.39	*	12.53
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	6.82	13.58	18.78	39.18	*	293.66
FINANCE AND INSURANCE (MILLIONS OF DOLLARS)						
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	17.21	35.09	22.41	94.71	-22.00	-48.67
SALES OF ORDINARY LIFE INSURANCE	436.34	391.14	440.96	1268.43	-3.08	16.47
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX & NONTAX RECEIPTS, GENERAL FUND, TOTAL	117.52	187.04	179.16	483.72	*	10.53
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	56.42	56.81	56.74	169.96	*	11.70
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	21.34	69.73	51.98	142.05	*	0.28
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	5.57	3.94	26.62	36.12	*	-0.04
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	29.72	28.93	28.41	87.06	*	29.25
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	16.51	17.18	17.72	51.41	*	32.84
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	10.02	8.09	9.26	27.37	*	23.33

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY),
VALUE OF CONSTRUCTION CONTRACTS;
LIFE INSURANCE MARKETING & RESEARCH ASSOCIATION,
SALES OF ORDINARY LIFE INSURANCE;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 16,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Patterns of Manufacturing in Nonmetropolitan Kentucky, 1968-78

by Robert G. Cromley and Thomas R. Leinbach*

The industrial landscape of the United States has experienced significant changes during the last two decades. One important component of these changes has been the growth of industry in rural and other nonmetropolitan areas.[1] Between 1962 and 1978, 56 percent of the U.S. increase in manufacturing jobs were added to these areas.[2] Despite a slowdown in employment growth following the economic recession of 1974-75, nonmetropolitan industrialization continues to improve the employment opportunities of small towns across the nation. In fact, the growth of nonmetropolitan manufacturing is frequently cited as a major impetus for the demographic revitalization of rural America.[3]

While manufacturing dispersal is certainly the result of numerous changing forces over time, the most frequent explanation for the nonmetropolitan movement is either the filter-down process or product-cycle model.[4] Industrial decentralization is the spatial expression of changes occurring in a firm's production process and organization during the various stages of its product's life cycle.[5] Large metropolitan centers innovate and enjoy the rapid growth associated with the early stages of an industry's life cycle. However, as the industry matures, methods of mass production are introduced and the production process becomes standardized. The high wage rates of the urban centers become excessive as skill requirements decline and increasing competition may force the firm to transfer production to smaller settlements and establish branch operations where labor savings are available.[6]

The 103 nonmetropolitan counties of Kentucky are no exception to the national trend. Since 1960, total branch manufacturing employment in these counties has almost quadrupled.[7] However, this increase has not been uniform across the state over time. The development of the 46 nonmetropolitan counties of eastern or, Appalachian Kentucky (as defined by the Appalachian Regional Commission), has lagged behind the progress of their western counterparts. The non-Appalachian counties showed a significant economic and population turnaround during the 1960s while the Appalachian counties continued to experience economic decline and population loss until their dramatic reversal during the 1970s.

However, branch firms are only one dimension of the industrial structure of nonmetropolitan areas. While the branch component is primarily dependent on external forces, indigenous industries derive their initiative almost exclusively from local communities. Securing the establishment of a branch plant nationwide is often a zero-sum game between competing regions. What one region gains, another loses. However, communities wanting growth also can improve their chances by developing local reserves of capital and labor and encouraging local entrepreneurship. Nationwide, a large percentage of new jobs are derived from this source.

Thus, given the importance of manufacturing's contribution to nonmetropolitan development elsewhere, it seems appropriate to examine the nature of nonmetropolitan industrial growth and diversification in Kentucky, especially to compare the relative experiences of the Appalachian and non-Appalachian regions. Within this context, the origins and magnitude of manufacturing within each region are investigated to ascertain the relative contributions of externally controlled firms versus indigenous or homegrown operations. For the purposes of this study, branch operations are defined as any manufacturing establishment whose headquarters or parent company is located outside the study area.[8] Secondly, the structural characteristics of industry in each region are examined and contrasted with the change that has occurred between 1968 and 1978.[9]

MAP 1

NUMBER OF NONMETROPOLITAN MANUFACTURING EMPLOYEES BY COUNTY, 1978

Map produced in the University of Kentucky Cartographic Laboratory.

DATA SOURCE: Employment totals for the nonmetropolitan counties were obtained from information in Kentucky Department of Commerce, *1980 Kentucky Directory of Manufacturers*, Frankfort, Ky., 1980.

In 1978, over 126,000 persons were employed in manufacturing in the nonmetropolitan counties of Kentucky. The distribution of employment by county reveals a sharp distinction between the eastern and western regions of the state (Map 1). All four counties without any manufacturing firms lie either inside or adjacent to the Appalachian region. The Appalachian nonmetropolitan counties accounted for just under 30 percent of the total Kentucky nonmetropolitan employment in 1978 (Table 1), while their proportion of the state nonmetropolitan population was 46 percent.

TABLE 1

MANUFACTURING EMPLOYMENT IN NONMETROPOLITAN KENTUCKY: 1968-78

	1968			1978		
	Branch	Indigenous	Total	Branch	Indigenous	Total
Appalachian Kentucky	17,806	9,209	27,015	25,851	10,692	36,543
Non-Appalachian Kentucky	56,640	18,127	74,767	72,035	17,725	89,760

SOURCE: Kentucky Department of Commerce, *Kentucky Directory of Manufacturers*, Frankfort, Kentucky, 1970 and 1980 editions.

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High concentrations of manufacturing employment are evident in the Appalachian region along I-75. In the western portion of the state, the highest manufacturing employment concentrations lie along I-65 and the state parkway system. Generally, the pattern of employment highlights the greater accessibility and abundance of industrial sites in the western regions of the state as well as more competition from the mining sector in the eastern counties.

MAP 2

BRANCH EMPLOYMENT AS A PERCENTAGE OF TOTAL MANUFACTURING EMPLOYMENT, 1978

Map produced at the University of Kentucky Cartographic Laboratory.

DATA SOURCE: Calculations made by the authors from information in Kentucky Department of Commerce, 1978 Kentucky Directory of Manufacturers, Frankfort, Ky., 1978.

Branch operations contributed approximately 78 percent of total nonmetropolitan manufacturing, a share that has increased from 60 percent since 1960. The spatial distribution of the branch component parallels the total manufacturing trend (Map 2). Branch firms are less numerous in the eastern counties; eight of the ten counties with no branch manufacturing lie inside or are adjacent to Appalachian Kentucky. In fact, indigenous employment was the major component in thirteen of the forty-three Appalachian nonmetropolitan counties while it was the dominant component in only five of the fifty-three non-Appalachian nonmetropolitan counties that had some manufacturing. The greatest concentration of branch plants is in the west-central portion of the state. Over 40 percent of the branches are located in an area bounded by the traverses of I-65 in the east and the Pennyrile Parkway in the west. Branch employment is weakest in the strong mining counties of the western coal basin and the easternmost portion of the state. Overall, branch firms contributed over 70 percent of Appalachian total manufacturing and 80 percent of total non-Appalachian manufacturing.

Although the western counties have the overall edge in total branch and indigenous employment, the percentage change in manufacturing during the 1970s for the Appalachian nonmetropolitan region far exceeded that for the non-Appalachian nonmetropolitan counties. In the eastern region, total manufacturing employment increased 35 percent, with branch increasing 45 percent and indigenous gaining 17 percent. However, in the western counties, total manufacturing employment only increased 20 percent; 27 percent of this was branch firms, while indigenous employment actually declined 2 percent. The number of branch operations in Appalachian Kentucky increased from 111 to 147 firms, while the number of indigenous firms declined from 398 to 344. For non-Appalachian Kentucky, the number of branch firms increased from 289 to 349 while the number of indigenous firms fell from 650 to 531. The growth in branch firms across the state may be attributable in part to the acquisition of indigenous firms, but the bulk of the increase has resulted from the establishment of new branch plants.

These growth trends, however, were not constant over the entire ten-year period. For the state, nonmetropolitan employment increased by almost 20,000 workers between 1968 and 1973, while it only increased by approximately 5,000 from 1973 to 1978. Branch manufacturing employment growth declined from an increase of 18,119 additional workers during the first five-year period to only 5,321 new workers between 1973 and 1978. After adding 1,628 new workers between 1968 and 1973, indigenous employment actually lost 547 workers between 1973 and 1978. The declines in both branch and indigenous growth rates over the state are not merely a Kentucky phenomenon but reflect the impact of the 1974-75 national recession, as well as other national trends.

The growth patterns of Appalachian and non-Appalachian Kentucky also shifted during this period. In the first five years, the increase in branch employment in the west was twice the increase in the east (12,143 to 5,976); however, during the latter period, the western increase was only moderately higher than the eastern figure (3,252 to 2,069). The change in indigenous employment was even more dramatic. Between 1968 and 1973, indigenous employment in the west increased by 1,362 workers against an increase of 266 jobs in the east. Conversely, between 1973 and 1978, indigenous employment in Appalachian Kentucky grew by 1,220 while it declined by 1,767 in the west. Although the western counties are still the dominant manufacturing region of the state, the eastern counties have narrowed the margin somewhat during the last five years.

In an attempt to learn more about the nonmetropolitan manufacturing pattern of employment in the twenty Standard Industrial Classification (SIC) groups, the data on Kentucky manufacturers were separated into durable and nondurable components, while incorporating the Appalachian-non-Appalachian and branch-indigenous firm distinction. The data for 1978 show that Appalachian manufacturing employment in the durable group is nearly identical to the nondurable group with merely several hundred employees separating the two (Table 2). For the non-Appalachian counties over 5,000 employees separate the durable and nondurable groups.

TABLE 2

APPALACHIAN VERSUS NON-APPALACHIAN NONMETROPOLITAN KENTUCKY: DURABLE AND NONDURABLE MANUFACTURING EMPLOYMENT, 1978

	Appalachian Kentucky			Non-Appalachian Kentucky		
	Branch	Indigenous	Total	Branch	Indigenous	Total
Durable	12,056	6,004	18,060	35,103	6,982	42,085
Nondurable	13,795	4,688	18,483	36,932	10,743	47,675

SOURCE: Same as for Table 1.

Clearly the durable-nondurable manufacturing employment ratio is higher within the Appalachian region: .98 versus .88. In the durable group, branch firms in the Appalachian region account for nearly twice as much employment as do the indigenous firms, while branch employment totals nearly three times the indigenous employment in the nondurable category. In contrast, for the nonmetropolitan non-Appalachian counties, branch firm employment exceeds indigenous

firm employment in the durable group by over five times. The excess of branch over indigenous employment in the nondurable group in the non-Appalachian counties is nearly equivalent to that of the Appalachian counties. An explanation of the differences may be illuminated by a breakdown of the sectoral employment.

The characteristics of nonmetropolitan Appalachian Kentucky employment contrast with the nonmetropolitan non-Appalachian counties, especially with respect to SIC categories 22, 23, 24, 28, and 33 (Table 3). There is a much larger proportion of employment associated with apparel (SIC 23) and lumber products (SIC 24) in Appalachian than in non-Appalachian Kentucky. The data are not surprising given the resource base and the overall absence of competing firms for female, low-wage labor. Conversely, textiles (SIC 22), chemicals (SIC 28), and primary metals (SIC 33) are proportionately more significant for employment in non-Appalachian Kentucky. Undoubtedly accessibility (transportation and services) and the nature and location of demand account for these differences. Chemical firms, many of which produce agriculturally related products, are located within the major agricultural areas of the state while primary metal firms require high quality access to major demand points, usually metropolitan areas. A major locational factor for the significantly large operations in these industries is the availability of water for barge transportation and for cooling and processing. Despite these differences, the overall distribution of the combined branch and indigenous employment among the range of product types is not significantly different between the two regions of the state.

TABLE 3

COMPARATIVE DISTRIBUTIONS OF NONMETROPOLITAN MANUFACTURING EMPLOYMENT BY SIC CLASSIFICATION, 1978

		Appalachian Ky		Non-Appalachian Ky	
SIC	Category	Number of Employees	Percent of Total	Number of Employees	Percent of Total
20*	Food	2,169	6%	6,102	7%
22*	Textiles	1,549	4	6,593	8
23*	Apparel	8,829	24	13,161	15
24	Lumber	3,027	8	2,391	3
25	Furniture	925	2	2,062	2
26*	Paper	2,001	5	2,388	3
27*	Printing	904	2	2,872	3
28*	Chemicals	680	2	7,497	9
30*	Rubber-Plastics	970	3	5,305	6
31*	Leather	1,871	5	1,814	2
32	Stone, Clay, and Glass	2,257	6	4,150	5
33	Primary Metals	669	2	4,933	6
34	Fabricated Metals	3,212	9	7,057	8
35	Machinery	3,030	8	9,801	11
36	Electrical	3,525	10	7,132	8
37	Transport Equipment	445	1	2,494	3
38	Instruments	410	1	760	1
39	Miscellaneous	606	2	1,259	1
Total		37,079		87,771	

*Nondurable Goods.

SOURCE: Same as Table 1.

The final portion of the analysis deals with the change in employment within the sectoral distribution in Appalachian and non-Appalachian Kentucky between 1968 and 1978 (Table 4). Except for lumber, all sectors in Appalachian nonmetropolitan branch and indigenous manufacturing firms experienced an increase in employment from 1968-78. The most conspicuous overall gains were within the fabricated metals and machinery sectors. The growth in the machinery sector, particularly the branch plant employment jump from 146 to 2,523, is very striking, as is the growth in indigenous machinery firms.

Fabricated metals also reveal considerable growth among both branch and indigenous firms. Nationwide, the growth of light-weight fabricated metal products continued at a fairly constant demand level through the 1970s and was due to the adding and replacing of hardware and related items, the consumption of materials for maintenance and improvement, as well as to construction of housing and commercial and industrial buildings.[10]

Employment in indigenous apparel firms also increased in the region over the decade from 1,086 to 1,620 workers. Nationally, employment in the manufacture of curtains, draperies, and canvas, auto trim, uniforms and other related products shows the brightest promise for the future of the trouble plagued domestic apparel industry. Improved processes, rigid inventory controls, and accommodation of sales to specialty and high volume market outlets may hold the keys to the survival of these types of firms.[11]

A decrease in employment is clearly recorded among indigenous lumber firms in the region with a decline of over 600 workers. Dwindling hardwood timber stands, mounting competition from greatly enlarged worldwide paper supplies, and reduced demand from the housing industry may account for the change. In addition, one of the important factors in the demise of Kentucky's primary wood industries during the 1970s was the high cost of workers' compensation insurance in the industry. Before the changes which were legislated in 1980, few lumber operations could afford the high costs of this insurance.

In the non-Appalachian region, there was overall branch and indigenous employment growth only in the machinery and fabricated metals sectors during this period and this growth was from a much larger base than in the Appalachian region. Primary metals and rubber-plastics products branch employment grew well above the average rate, but there was a decline in indigenous firms in these sectors. The growth of branch employment in the rubber-plastics products sector reflects in part a nationwide pattern of expansion resulting from consumer demand for a variety of household and commercial items. Branch and indigenous manufacturing employment in the food and apparel sectors declined in the region over the decade, as did branch employment in the electrical sector. Despite intense competition from electronics and engineering firms, branch textile employment actually grew, although not significantly. Perhaps the most conspicuous aspect of the change pattern in the non-Appalachian region was the broad decline among indigenous firms in eight of the eleven sectors. The largest percentage declines were among food and rubber-plastics firms and these are simply the most obvious examples of activities where diseconomies and lagging demand have produced decline.

Summary

The nonmetropolitan manufacturing pattern of Kentucky reveals a strong contrast between the eastern and western regions of the state. The Appalachian counties account for

TABLE 4

SELECT SIC NONMETROPOLITAN EMPLOYMENT DISTRIBUTION AND PERCENTAGE CHANGE: 1968 AND 1978

		Appalachian Kentucky						Non-Appalachian Kentucky					
SIC	Category	1968 Branch	1978 Branch	Percent Change	1968 Indigenous	1978 Indigenous	Percent Change	1968 Branch	1978 Branch	Percent Change	1968 Indigenous	1978 Indigenous	Percent Change
20	Food	1,059	1,106	63	1,038	1,063	29	3,930	3,503	-11	2,974	2,599	-80
22	Textiles	434	913	110	345	636	17	3,983	4,304	8	2,321	2,289	-2
23	Apparel	6,567	7,209	9	1,086	1,620	49	10,328	10,085	-2	3,307	3,076	-7
24	Lumber	658	694	5	2,935	2,313	-21	686	712	4	1,975	1,679	-15
28	Chemicals	34	584	1617	52	100	96	5,225	7,806	40	239	187	-21
30	Rubber-Plastics	592	722	22	34	248	629	1,733	5,226	200	200	79	-61
32	Stone, Clay, and Glass	1,220	1,383	13	662	874	32	2,847	3,120	27	1,230	1,030	-15
33	Primary Metals	247	535	116	78	134	72	2,176	4,755	119	334	178	-47
34	Fabricated Metals	1,549	2,382	54	500	784	56	5,096	5,912	16	848	1,191	35
35	Machinery	146	2,523	1628	164	507	210	3,625	9,074	150	559	727	30
36	Electrical	2,812	3,509	66	0	16		7,801	6,684	-14	182	448	146

SOURCE: Same as Table 1.

under 30 percent of the total employment and the employment tends to be concentrated. In both regions major transportation arteries appear to have attracted industry.

Employment associated with branch operations accounts for nearly 80 percent of total nonmetropolitan manufacturing and the importance of employment associated with these operations has increased significantly over two decades. Branch firms are less numerous in the eastern region but this type of employment accounted for over 70 percent of nonmetropolitan Appalachian total manufacturing. In the non-Appalachian region, branch employment accounts for 80 percent of the total. Indigenous employment exceeds branch employment in more counties of the eastern region than of the western.

Between 1968 and 1973 the increase in branch employment in the west was double the increase in the east. During the 1973-78 period the western increase was only moderately higher than in the east. Indigenous employment increased more in the western region in the first period, while during the second period indigenous employment declined considerably. Some growth in indigenous employment was experienced in Appalachian Kentucky during the 1973-78 period.

The durable-nondurable employment ratio in non-Appalachian Kentucky was considerably lower than that of Appalachian Kentucky in 1978. In eastern Kentucky over the last decade the proportion of branch employment in the apparel industry has declined and a major shift has occurred in the machinery sector. Major growth sectors such as plastics, chemicals, and fabricated metals account for 20 percent of the nonmetropolitan Appalachian employment. Despite several differences, the overall distribution of the combined branch and indigenous employment among the range of activity sectors is not significantly diverse between the two regions of the state.

Sectoral changes in the Appalachian region are most significant among both indigenous and branch firms within fabricated metals and machinery. As noted above, the most conspicuous aspect of the change patterns in the non-Appalachian region was the broad decline over many sectors in indigenous employment.

A final observation may be made on the overall importance of manufacturing in the respective regions. While the western nonmetropolitan counties still constitute the dominant manufacturing area of the state outside the metropolitan concentrations, the eastern nonmetropolitan counties have narrowed the margin considerably.

Footnotes

[1]Nonmetropolitan is defined as any county not included within a Standard Metropolitan Statistical Area.

[2]Claude D. Haren and Ronald W. Holling, "Industrial Development in Nonmetropolitan America: A Locational Perspective," in *Nonmetropolitan Industrialization*, eds. Richard E. Lonsdale and H. L. Seyler (New York: Halsted, 1979), p. 17.

[3]For a discussion of the impact of industrialization on nonmetropolitan population growth, see James Fisher and Ronald Mitchelson, "Forces of Change in American Settlement Pattern," *Geographical Review*, Vol. 71, No. 3 (July 1981), pp. 301-302.

[4]W. Thompson, "The Economic Base of Urban Problems," in *Contemporary Economic Issues*, ed. Neil W. Chamberlain (Homewood, Illinois: Irwin, Inc., 1973), pp. 8-9.

[5]S. Hirsch, *Location of Industry and International Competitiveness* (Oxford: Clarendon Press, 1967).

[6]R. A. Erickson and T. R. Leinbach, "Characteristics of Branch Plants Attracted to Nonmetropolitan Areas," in *Nonmetropolitan Industrialization*, eds. R. E. Lonsdale and H. L. Seyler (New York: Halsted, 1979), pp. 57-58.

[7]For a more detailed analysis of branch manufacturing in Kentucky, see R. G. Cromley and T. R. Leinbach, "The Pattern and Impact of the Filter Down Process in Nonmetropolitan Kentucky," *Economic Geography*, Vol. 53, No. 3 (July 1981), pp. 208-224.

[8]Data for this study were compiled from the 1970 and 1980 *Kentucky Directory of Manufacturers* published by the Kentucky Department of Commerce.

[9]For a more detailed analysis of the structural change of industry in nonmetropolitan Kentucky, see Cromley and Leinbach, op. cit., footnote 7 and T. R. Leinbach and R. G. Cromley, "Micropolitan Development in Appalachian Kentucky: The Role of Manufacturing," forthcoming.

[10]Haren and Holling, op. cit., p. 42.

[11]Ibid., p. 43.

Acknowledgements

The authors wish to acknowledge the research support provided by the University of Kentucky Research Foundation, the Department of Geography, University of Kentucky Cartographic Laboratory, and the comments of two anonymous referees.

(continued from page 7)

Alcoholic beverage taxes. It has also been estimated that Kentucky had approximately $24 million in unused tax potential in 1979 from taxation of alcoholic beverages.[10] The casual observer of prices for alcoholic beverages in Kentucky, as compared to other states, might conclude that Kentucky taxes these products heavily at the retail and wholesale levels. But, in fact, this is not the case. Rather, the high prices are the result of legislation that forbids price competition by requiring uniform pricing by wholesalers. The effect of increased taxation on consumption would be minor because the quantity sold is not very sensitive to price changes. The ideal legislative change would couple higher taxation of alcoholic beverages with a repeal of "fair trade" laws. This would convert legislatively-created excess profits for alcoholic beverage wholesalers into higher tax revenues with little affect on prices.

Sales tax. The sales tax has become the most important revenue source for state governments. It is presently levied in forty-five states plus the District of Columbia. Rates vary from 2 percent to 7.5 percent and eleven states, including Kentucky, levy a rate of 5 percent or more. The Kentucky sales tax could be made more productive by (1) increasing the tax rate, (2) making any of the items which were exempted during the 1970s—the most important exemptions are food and residential utilities—taxable, or (3) expanding the tax base to include additional services. The first alternative, an increase in the tax rate to, say 6 percent, is the option with the least administrative problems. A 6 percent rate would have added about $126 million to fiscal 1980-81 General Fund sales and use tax receipts.

The revenue effect of taxing transactions which were dropped from the sales tax in recent years is difficult to estimate but taxation of food and utilities alone, for example, could be expected to have added approximately $175 million to fiscal 1979-80 receipts.[11] Efforts to reverse these exemptions would likely meet stiff opposition primarily on tax equity grounds. Exemption is, however, a very revenue costly method to lessen sales tax regression because the largest dollar amounts of tax relief tend to go to high income taxpayers. An alternative approach is to tax food and utilities but to provide tax relief for low income taxpayers through credits against state income tax. This approach is currently used in a few states. The major advantage is that it permits sales tax relief to be focused on the truly needy and thus costs less in lost revenues. The major disadvantage is that it complicates administration of the state income tax.

The third sales tax option would be to increase the list of taxable services. The revenue effect would be difficult to forecast because it would depend on exactly which services were included. This option would probably be the most politically acceptable, most difficult to administer initially, and least productive of the three sales tax alternatives. In contrast with the first or second option, however, it would tend to make the sales tax slightly less regressive.[12]

The tax options outlined in this article differ in their effect on revenues, distribution of tax burden, and tax exporting. Choosing from them is further complicated by the issue of political feasibility. Despite the inherent difficulties, it may be necessary for the 1982 Kentucky General Assembly to design a tax increase package that accomplishes the objective of increased revenues, is politically acceptable, and meets at least some of the taxation criteria discussed in this study.

Notes

[1] William B. Gardner II and Richard Thalheimer, "A Review of Kentucky Revenue for 1980-81 and a Forecast for 1981-82," and Lawrence K. Lynch, "The Shortfall in Kentucky Tax Revenues," *Kentucky Economy: Review & Perspective*, Vol. 5, No. 3, September 1981, pp. 6-7, 10 and pp. 10-11.

[2] Stephen E. Lile, "The Effect of Tax Revision on Revenue Adequacy in Kentucky," *Kentucky Economy: Review & Perspective*, Vol. 5, No. 2, June 1981, pp. 8-10.

[3] Advisory Commission on Intergovernmental Relations, *Significant Features of Fiscal Federalism*, 1979-80 Edition (Washington, D.C.: Government Printing Office, 1980), Table 36, as cited in Stephen E. Lile, "Tax Options for Kentucky State Government," *KCEA Policy Paper Series*, No. 11 (Lexington, Ky.: Office for Research, College of Business and Economics, University of Kentucky, October 1981), p. 7.

[4] Stephen E. Lile, *Interstate Comparisons of Family Tax Burdens with Residence Location Based on Each State's Largest City* (Frankfort: Kentucky Department of Revenue, 1978).

[5] Kenneth E. Quindry and Niles Schoening, *State and Local Tax Performance, 1979* (Atlanta: Southern Regional Educational Board, 1980), as cited in Lile, "Tax Options," p. 10.

[6] Suggestions for change in Kentucky individual income tax rates are also included in Don M. Soule, "Can We Afford to Simplify the Kentucky Income Tax?" *Kentucky Economy: Review & Perspective*, Vol. 3, No. 4, December 1979, pp. 9-11.

[7] Quindry and Schoening, as cited in Lile, "Tax Options," p. 10.

[8] Local rates levied in Virginia and several other states are excluded.

[9] For a more complete explanation of why an increase in tax would not harm the Kentucky tobacco industry, see Janet Cabaniss, William Bachman, and Don Soule, *Kentucky's Cigarette Tax: A Neglected Source of Tax Revenue* (Lexington, Ky.: Office for Development Services and Business Research, University of Kentucky, 1971).

[10] Quindry and Schoening, as cited in Lile, "Tax Options," p. 10.

[11] Lile, "The Effect of Tax Revision," p. 9.

[12] The experience that Iowa had with including services is described by William Forst, formerly of the Kentucky Department of Revenue, in "Limited Coverage of Services—The Iowa Experience," *Proceedings of the Sixty-Second Annual Conference of the National Tax Association-Tax Institute of America*, 1969, pp. 161-66.

(continued from page 5)

thereby without jeopardizing the competitiveness of the various coal industries in the region. This type of collaboration would be especially advantageous in the face of the increasing export demand for Appalachian coal.

Appalachian coal is in strong demand abroad. Over 70 percent of the 1980 U.S. overseas export of 76.5 million short tons of coal originated in southern Appalachia and mining District 8 made up 76 percent of southern Appalachian coal production that year. Eastern Kentucky producers are located in District 8, and in 1980 they produced 56.6 percent of the total output of the district.[2] Clearly, the export market is very important to coal producers in southern Appalachia in general, and to those in Eastern Kentucky in particular.

Europeans are buying Appalachian coal, not because it is less expensive–it isn't, nor because it is better–it isn't that necessarily either, but because, in their mind, it is the most reliable source of supply. The delivered price of U.S. coal abroad is approximately 20 percent higher than Australian or South African coal, the two other primary coal exporters to Europe. The price, within the present range, is not the principal determinant in the European decision to buy coal in America. Thus, the imposition of a fractionally higher severance tax throughout the Appalachian coal basin is unlikely to affect the European demand for this coal.

European utility buyers have been plagued by long and costly delays in Australian deliveries, and by moral and political reservations about dealing with South Africa. Deliveries from the U.S., on the other hand, are more certain and quite predictable. Terminal waiting times in the Baltimore or Hampton Roads ports are predictable and so is the triannual UMW strike. A moderate amount of stock-piling can remove much of the remaining uncertainty.

In terms of heating value and levels of impurities such as sulfur and particulates, the best U.S. coal is located in the Appalachian basin. European buyers are keenly interested in this coal, and less in U.S. interior or western coal. The prospects for a continuation and perhaps an acceleration in U.S. coal exports to Europe are excellent.

Given this situation, none of the states of the Appalachian coal basin will wish to kill the proverbial goose that lays such fine eggs. None will want to make this coal less competitive for export or for domestic use, and they don't have to. But if these states act in concert, modestly increasing coal severance taxes could provide a valuable mechanism for raising much needed additional revenues, without endangering the competitiveness of any specific state.

Notes

[1] The rationale for a coal severance tax is discussed in Osbin L. Ervin, Uday C. Desai, and John L. Foster, "Policy Issues in Coal Severance Taxation," *Coal Policy Review Series 80-1* (Carbondale, Ill.: Coal Extraction and Utilization Research Center, Southern Illinois University, 1981).

[2] Calculations based on data in U.S. Department of Energy, Energy Information Administration, *Coal Distribution January-December 1980* (Washington, D.C.: Government Printing Office, April 7, 1981). It can also be noted that according to the Department of Energy's Weekly Coal Report, *Weekly Coal Production* (No. 216, November 20, 1981), overseas exports of U.S. coal for the first nine months of 1981 were approximately 25 percent ahead of the same period for 1980.

KCEA News & Notes

(continued from page 2)

There are now plotting and table-making features within KEIS program DTP (and its interactive version on the Frankfort system, DTPI). Plots produced by Program DTPI are used to illustrate the Soule article on pages 4 and 5 of this issue. Series from any of the databanks can be plotted for any specified period of time; likewise the results of transformations or the output from other features of program DTP can be saved temporarily and plotted. This same feature is available in program MODLER (MODLERI). Up to fifty data series for a ten period span can be printed in tabular form; the results of data transformations can also be printed in tabular form. The commands for producing DTP plots or tables will be provided to KEIS users upon request.

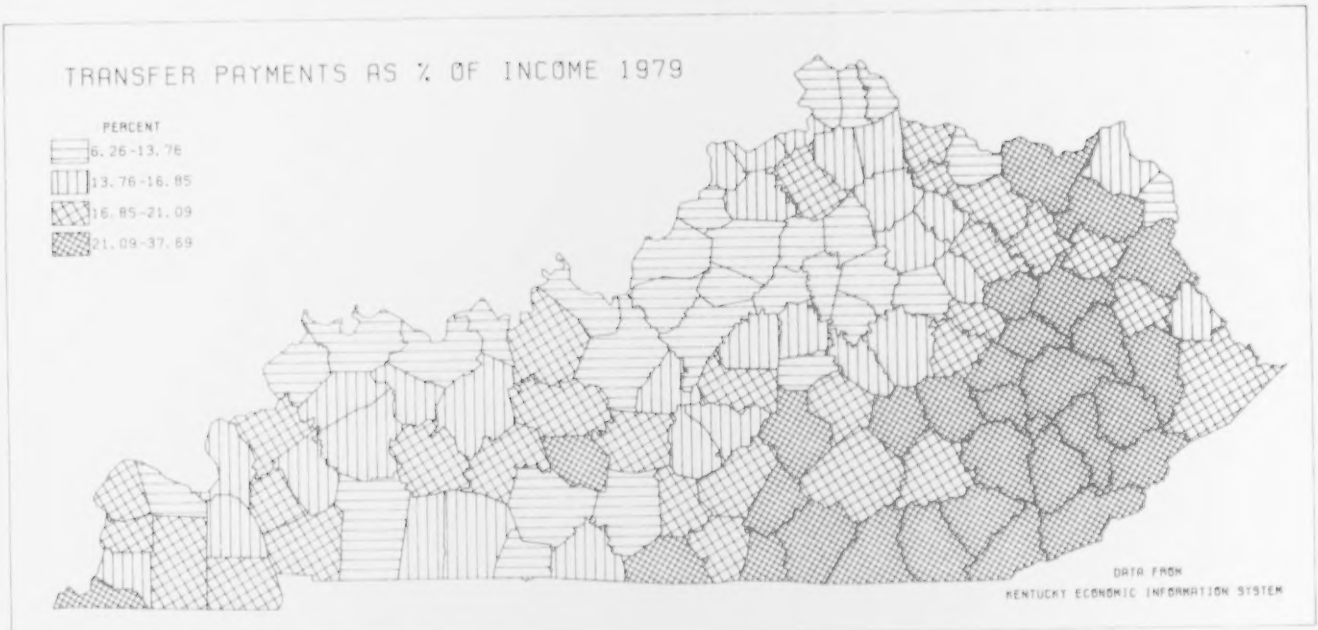
The staff of the KEIS continues to give presentations about the KEIS or to hold training sessions in its use. Recent activities include a training session at the offices of the Kentucky Department of Education, Frankfort, and presentations to graduate courses in the Departments of Business Administration and Library Science, University of Kentucky and to Economics undergraduates at Transylvania University. For further information about the KEIS, or to schedule a training session, please call the KEIS Manager (606--258-4626).

* * *

Margaret O. Adams, Manager of the KEIS, addressed the Association of University Business and Economic Research (AUBER) Pre-Conference Data Base Workshop on the topic, "Acquisition and Retention of Data." The workshop was held October 3, 1981 in Charleston, West Virginia.

Frances E. Ross, KCEA Data Analyst, participated recently in a training seminar sponsored by the U.S. Department of Energy and concerned with Energy Information Administration (EIA) Products and Services.

–moa–



The above map shows county-level transfer payments as a percentage of the total personal income of Kentucky residents in 1979, the latest year for which county-level personal income data have been released by the source agency, the Bureau of Economic Analysis, U.S. Department of Commerce.

Transfer payments are defined as income payments to persons, generally in monetary form, for which they do not render current services. The component includes payments by government and business to individuals and nonprofit institutions. For the year 1979, transfer payments were 13.0 percent of U.S. personal income and 14.5 percent of Kentucky personal income.

The map was produced by Program KYAMS. For further information, please contact Roy Sigafus, KCEA Senior Systems Analyst/Programmer (606) 258-4626.

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March 1982
Vol. 6, No. 1

KCEA Review and Forecast

by Charles W. Hultman*

The Kentucky economy moves into the year 1982 with one of the highest unemployment rates on record. The December unemployment figure rose to 9.5 percent of the labor force, or about 158,000 workers. This situation is due in part to national recession and in part to seasonal layoffs typical during the cold months. During the early and mid-1970s the Commonwealth experienced substantial growth and per capita income rose compared with the national average. But since late 1979, Kentucky has been seriously affected by the high interest rates and unavailability of funds that have had their greatest impact on construction and on automotive and related industries. The weakness in these industries has, of course, spread to other sectors of the economy, including manufacturing generally.

Although the industrial mix, resource base, and political structure of Kentucky are somewhat different from those of most other states, the fact remains that the well-being of the economy depends to a great extent on national developments. In general, the major national forecasters anticipate an upturn in the third or fourth quarter of 1982. However, much uncertainty remains regarding federal government policies, particularly those related to the size of the deficit and the level of defense and welfare expenditures. For example, one alternative budget that has been suggested would reduce, by about $340 billion, the Administration's projected deficit for the next three fiscal years. If the "New Federalism" ideas put forth by President Reagan in his State of the Union address earlier this year were enacted, these would have a major impact on the U.S. economy, but they are not likely to be implemented immediately.

One bright sign in the economy relates to inflationary pressures which appear to have weakened along with the slump in economic activity. The inflation rate, as reflected in the Consumer Price Index, increased at a rate of 8.9 percent in 1981 and is expected to drop to between 7.0 percent and 7.25 percent for 1982 and 1983. It is also unlikely that automobile production and construction generally will fall much, if at all, below their present levels.

Some impetus to expansion will occur as a result of the second tax reduction, scheduled for July 1, 1982, that is part of the Economic Recovery Act of 1981. A major concern is that the growth incentive could be offset by continued large federal deficits. Morgan Guaranty Trust Company, for example, projects (February 1982) increases in real GNP of only 3.2 percent and 3.6 percent during the third and fourth quarters of 1982 with unemployment remaining above 9 percent through 1982. The Wharton Quarterly Model dated January 27, 1982 also projects that significant recovery will not commence until the third and fourth quarters of this year with real GNP rising at 4.94 percent and 3.75 percent, respectively. The prime loan rate which averaged almost 18.9 percent in 1981 would generally be in the 15 to 16 percent range during 1982. However, mortgage rates generally are not expected to show improvement in 1982, nor in 1983, as compared with 1981. The expansion foreseen for the latter part of 1982 is expected to be relatively pervasive with above-average gains in durable goods production, fixed business investment, residential construction, and net exports.

As shown in the table of selected economic indicators in this issue, employment in durable goods manufacturing in Kentucky declined to slightly over 144 thousand people in the fourth quarter of 1981. This is substantially below the peak of almost 172 thousand reached in 1979. Nondurable goods manufacturing has held up somewhat better with a fourth quarter average of 120.4 thousand as compared with a high of approximately 126 thousand in 1979. Similarly, the state's fourth quarter employment in wholesale and retail trade stood at close to 263 thousand as compared with a high of 268 thousand in 1979. Insured weekly unemployment during January of 1982 averaged about 80 thousand people, as compared with weekly averages of 30 to 40 thousand insured unemployed during the summer of 1981.

Unemployment in Kentucky will decline, in all likelihood, through the first part of 1982 because of seasonal factors, but the national recession is expected to continue to depress employment until at least the latter part of the year. Even then, recovery is not expected to be strong, particularly because of relatively high interest rates remaining in effect nationwide.

Charles W. Hultman is the Chairman of the KCEA and the Associate Dean for Research, College of Business and Economics, University of Kentucky.

We are happy to announce that the *Council of Economic Advisors Annual Report–1981* has been mailed to all persons who requested a copy. Persons who have not received their copy or who wish to order a copy should *write* to the KCEA, 451 Commerce Building, University of Kentucky, Lexington, Kentucky 40506. As long as copies remain, single requests for the *Annual Report* will be filled at no charge for those in the nonprofit sector; there is a $10.00 charge for all others.

* * *

We are pleased to note that we are contracting with Professor Mukhtar M. Ali, Department of Economics, University of Kentucky, for the construction of a new quarterly model of the Kentucky economy. His work is scheduled to begin this summer and we hope to be publishing forecasts later this year. Dr. Ali, an econometrician, previously collaborated in building models for Kentucky revenue forecasting and related to the coal industry.

* * *

Professor Don M. Soule, Acting Executive Director of the KCEA, addressed a recent seminar at the Center for Economic Education at Western Kentucky University, Bowling Green, on the topic of the New Fiscal Federalism. He also recently appeared on the TV news-panel program "Your Government," Channel 18 (Lexington), responding to reporters' questions about the state and national economies.

* * *

In the table of indicators of the Kentucky economy on page 9, tax receipts for the fourth calendar quarter of 1981 for the state portion of the State Road Fund are shown to have declined 12.01 percent when compared with receipts for the fourth calendar quarter of 1980. However, for the first six months of fiscal year 1982, these receipts were 5.5 percent ahead of the comparable period in fiscal year 1981. The decline shown in the table can be attributed to the fact that in December 1980, $14.2 million in coal severance tax receipts were transferred from the General Fund to the State Road Fund. No transfer of this nature has yet been made during the current fiscal year.

* * *

Edward Sturgeon, Director of Research for the Lexington Chamber of Commerce, has sent us some data to update his survey of horse sales, published here a year ago. He reports that total public auction horse sales in Lexington rose 29.4 percent in 1981, for a total value of $403.7 million.

* * *

The State Data Center, operated by the Urban Studies Center at the University of Louisville, has announced the availability of the first of the 1980 Census of Population and Housing summary tapes. The computer tape containing the Kentucky STF 1A and 1B files is now publicly available to persons having a computer account on the University of Kentucky's IBM 370, through any of the Kentucky Educational Computing Network (KECNET) installations. Interested persons should contact Wanda Spisak, Consultant at the University of Kentucky Computer Center (606-258-2914), for further information about accessing these tapes.

* * *

(continued on page 15)

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Effects of Employment Patterns on Income Levels, 1970-80

by Don M. Soule*

Kentucky's position relative to the nation in per capita personal income is influenced by many factors. One of these is the distribution of employment among industrial groups that differ in levels of average wages. Insofar as Kentucky's distribution of employment differs from that of the nation, and insofar as these distributions change over the years, Kentucky's per capita income may differ from that of the nation and also may change in relative position over time. Indeed, Kentucky's level of personal income could rise, relative to the nation, if Kentucky's industrial distribution of employment changed favorably. A favorable change would be a greater-than-national increase in emphasis on employment in the above-average wage industries. Absence of a favorable change would be one factor causing Kentucky not to gain relative to the nation in level of average personal income.

A convenient period for comparison is the decade 1970 to 1980, with comparison between 1970 and the two years 1979 and 1980.[1] Two years are selected instead of one because of the unusual economic conditions near the decade's end. Of concern are changes in the industrial distribution of employment and the industrial differences in average wages.[2] Three tables (1, 2, and 3) present employment and wage information for Kentucky and the United States, both as totals and as distributions among eight industry groups, for 1970, 1979, and 1980. These tables allow three main types of comparisons:

TABLE 1

INDUSTRIAL DISTRIBUTION OF EMPLOYMENT UNITED STATES AND KENTUCKY, 1970, 1979, AND 1980

	Number of Workers Employed, as Percents of Totals[1]					
	1970		1979		1980	
Industry Group	U.S.	Ky.	U.S.	Ky.	U.S.	Ky.
Mining	0.8	2.8	1.0	4.1	1.1	4.1
Construction	4.6	5.0	4.8	5.2	4.6	4.5
Manufacturing	25.1	24.5	22.2	22.5	21.4	21.6
Transportation	5.8	5.9	5.4	5.4	5.4	5.5
Trade	19.8	18.6	21.4	20.4	21.4	20.4
Finance	4.8	3.5	5.4	3.9	5.5	4.2
Services	17.6	16.3	19.8	17.0	20.3	17.6
Government	21.0	23.3	19.6	20.9	19.7	21.7
Total	99.5	99.9	99.6	99.4	99.4	99.6

[1] Employment data are for all workers on private and government nonagricultural payrolls. Annual amounts are averages of monthly totals. Total Kentucky nonagricultural wage and salary employment in 1970, 1979, and 1980, respectively, was 1,031.9, 1,316.4, and 1,280.5 thousand. Mining employment for those years was 28.4, 54.3, and 52.7 thousand. Consequently, Kentucky mining as a percent of total employment was 2.8, 4.1, and 4.1 in those years.

Don M. Soule is (Acting) Executive Director of the KCEA.

TABLE 2

INDEX OF INDUSTRIAL DISTRIBUTION OF EMPLOYMENT, KENTUCKY AS PERCENT OF UNITED STATES, 1970, 1979, AND 1980

	Percents of U.S. Values by Groups[1]		
Industry Group	1970	1979	1980
Mining	350	410	373
Construction	109	108	98
Manufacturing	98	101	101
Transportation	102	100	102
Trade	94	95	95
Finance	73	72	76
Services	93	86	87
Government	111	107	110

[1] Values in Table 1 are converted to indexes, with the Kentucky amounts expressed as percentages of the corresponding U.S. amounts.

(a) patterns of industrial distributions of employment, (b) changes in industrial distributions of employment over the decade, and (c) wage differences among industrial groups. In all three comparisons, Kentucky is related to the United States.

Table 1 presents industrial distributions of employment for Kentucky and the United States, for all private and governmental nonagricultural employment, for 1970, 1979, and 1980, divided into eight broad industrial groups: mining; construction; manufacturing; transportation and utilities; trade (wholesale and retail); finance, insurance, and real estate; services; government (federal, state, and local). Comparing Kentucky and U.S. data in Table 1, Kentucky's industrial distribution of employment had, by 1979, become quite similar to that of the nation, with the major exception of mining (where Kentucky is above the national average) and the smaller exceptions of finance and services (where Kentucky is below the national averages). The Kentucky employment distributions for 1980 differ from 1979 mainly because of a decline in construction's relative importance and an increase in finance's relative importance. The composite picture for 1979 and 1980, however, is one of close similarity of Kentucky to the nation in the distribution of employment among the eight broad industry groups, except for mining.

The data in Table 1 can be converted into a more convenient form by expressing the Kentucky amounts as percentages of the U.S. amounts. The resulting index numbers are presented in Table 2. An index number above (or below) 100 indicates that Kentucky has a larger (or smaller) percent of its employment in that group than does the nation. Between years, decline in an index number indicates that Kentucky's employment declined relative to the nation in that particular industry group, and vice versa. For example, Kentucky's mining employment is above the national average in all three years, with indexes of 350, 410, and 373 for 1970, 1979, and

TABLE 3

AVERAGE WAGES BY INDUSTRY GROUPS,
UNITED STATES AND KENTUCKY,
1970, 1979, AND 1980

Industry Group	United States Index of Average Annual Wages[1] (Annual Total = 100)			Kentucky Index of Average Annual Wages[1] (Annual Total = 100)		
	1970	1979	1980	1970	1979	1980
Mining	132	166	169	141	177	179
Construction	140	133	130	134	123	126
Manufacturing	112	121	123	119	124	126
Transportation	128	146	145	133	146	145
Trade	88	80	79	83	76	76
Finance	113	112	112	106	97	99
Services	90	87	87	66	68	70
Government	86	84	84	96	92	91
Total	100	100	100	100	100	100

[1] Earnings are for all workers on private and government nonagricultural payrolls. Average annual earnings in Kentucky for 1970, 1979, and 1980, respectively, were $6,079.30, $11,926.60, and $12,948.60. Similar amounts for mining were $8,551.60, $21,102.70, and $23,132.50, which as percents of the averages for total employment were 141, 177, and 179.

1980, respectively. The degree of above-average emphasis got larger between 1970 and 1979, but declined a bit in 1980. Other than in mining, Kentucky's employment distribution is not greatly different from that of the nation. For 1979, Kentucky compared with the nation as follows: well above average in mining; slightly above average in construction and government; nearly average in manufacturing, transportation, and trade; and below average in services and especially in finance. The picture for 1980 was nearly the same as for 1979, but with a large decline in construction.

The significance of Kentucky's industrial distribution of employment, as it differs from the nation and as it changes over the years, is suggested by the differences in levels of average wages among industry groups. Shown in Table 3 are indexes of average annual wages in the eight industry groups, for Kentucky and the United States, for the three years 1970, 1979, and 1980. Average wage for a particular group and year is expressed as a percent of the average wage for all employment in that year. An index number above (or below) 100 indicates above (or below) average wages. For example, mining wages in Kentucky were 141 percent of the Kentucky average in 1970 and were 177 percent and 179 percent in 1979 and 1980. Because Kentucky places above-average emphasis on mining employment, and because mining wages are above both the Kentucky and national average wages, Kentucky's level of personal income receives a large boost from the mining industry.

Viewing both Tables 2 (employment) and 3 (wages), Kentucky in 1970 and 1979 placed above-average emphasis on employment in two high-wage groups (mining and construction) and in one slightly low-wage group (government). Wages were above average in manufacturing and transportation, but Kentucky placed only average emphasis on employment in those two groups. In the trade and services groups, Kentucky had below-average emphasis on employment, but the wage levels were also below average. On balance, Kentucky's low level of per capita personal income relative to the nation (78 percent in 1970, 82 percent in 1979, and 80 percent in 1980) results from two factors relative to the above--not enough employment emphasis on the industry groups that are high in wages relative to the Kentucky average wage, and a general level of Kentucky wages that is too far below the national average.

Table 4 shows Kentucky's average annual wages, in total and by industry groups, as percents of the corresponding U.S. averages, for 1970, 1979, and 1980. Average Kentucky wages were only 76, 79, and 78 percent of the national average for the three years. And even in construction, manufacturing, and

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TABLE 4

INDEX OF AVERAGE WAGES, KENTUCKY AS
PERCENT OF UNITED STATES,
1970, 1979, AND 1980

Industry Group	Kentucky as a Percent of United States, by Groups[1]		
	1970	1979	1980
Mining	81	84	82
Construction	72	73	76
Manufacturing	80	81	80
Transportation	79	78	78
Trade	72	75	75
Finance	71	68	69
Services	55	61	62
Government	85	86	84
Total	76	79	78

[1] The comparisons in Tables 3 and 4 are different. Table 3 compares Kentucky average wages by industry groups with the average for all workers in Kentucky, while Table 4 compares Kentucky average wages by industry groups with similar averages for the nation. For example, Kentucky mining wages averaged $23,132.50 in 1980, which amount was 179 percent of the $12,948.60 average for all Kentucky workers. But the national average wage was $16,595.90 for all workers and $28,046.60 for mining, making Kentucky's mining wages only 139 percent of the national all-worker average and only 84 percent of the national mining average.

Recent Economic Activity in the Residential Sector

by L. Randolph McGee and Robert E. Spoerl*

The value of residential construction each year accounts for only about 4 percent, on average, of the gross national product (GNP). Relative to other components of GNP, such as investment in plant and equipment, residential construction may seem too small to have a significant impact on the performance of the national economy. However, residential construction is one of the most volatile types of economic activity when viewed over the business cycle; because of its cyclical sensitivity, it frequently accounts for a large portion of the *change* in the nation's output of goods and services. To a considerable extent, economic activity in the residential sector encompasses much more than construction: many industries are affected directly and indirectly by the changes in new construction, as well as by the resale of existing homes. Although regional differences exist, the residential real estate market is an important part of any state's economy, as well as of the national economy.

The National Association of Realtors recently estimated that over the three-year period, 1979 through 1981, there was a loss to GNP of $248.2 billion that could be attributed to the decline in real estate activity.[1] This estimate includes the various types of real estate activity, buf the bulk of it is related to the residential sector where the recent decline has been more severe. The estimate includes a $101.0 billion loss in single family sales and construction, a $25.9 billion loss in multifamily construction, and a $3.1 billion loss in manufactured housing production.

This article discusses some of the cyclical aspects of the two recent economic downswings in residential activity and recent housing market developments. These are examined for the nation and for Kentucky.

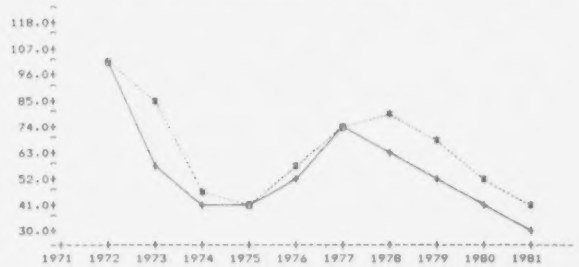
Cyclical peaks and troughs in residential activity tend to lead peaks and troughs in the general economy. This pattern is evident in existing single-family home sales, residential construction authorized, number of housing units started, and other types of activities in housing markets. The current recession in the residential sector predates the downturn in the general economy, in the nation and in Kentucky. This was also true for the 1974-75 recession.

For illustrative purposes, data on permit-authorized residential construction for Kentucky and for the nation were indexed to 1972, the first peak of the current decade.[2] These indexes are plotted in Figure 1. It is evident that the downturn in residential construction was more dramatic in Kentucky than in the nation in both the mid-1970s and late-1970s declines. The plot also indicates that authorized residential construction followed generally the same pattern in Kentucky as in the nation, but that both the trough and the peak of activity in Kentucky occurred a year before the same developments nationally. Throughout the decade, activity in Kentucky has been below that of the nation, when indexed to the respective activity in 1972. Finally, there has been no change in the direction of residential construction activity since authorization of permits peaked in Kentucky in 1977, and in the nation in 1978. The trough of the current cycle is therefore uncertain.

FIGURE 1

INDEX OF PERMIT-AUTHORIZED RESIDENTIAL CONSTRUCTION, U.S. AND KENTUCKY

LEGEND: SYMBOL FOR U.S.: * SYMBOL FOR KENTUCKY: +
SYMBOL FOR INTERSECTION OF * AND +: O



SOURCE: CONSTRUCTION STATISTICS DIV., BUR. OF THE CENSUS, U.S. DEPT. COMMERCE

As of this writing, the state and national economies still seem to be in a recession; activity in the residential sector is still depressed. A look at some of the more recent developments in national and state housing activity should therefore be enlightening.

As illustrated by the indexes in Figure 1, preliminary figures for 1981 indicate that residential building construction authorized by permits in Kentucky, and in the nation, continued the sharp decline of the previous years. Table 1 summarizes total permit-authorized construction activity in Kentucky for 1980 and 1981. Residential construction is shown to have declined by 25.3 percent, with single-family units authorized during 1981 falling by 32.4 percent from 1980. Multifamily units authorized declined by 15.4 percent for this period. Of these, two-family structures declined by 40 percent, three-four family structures declined by 46.4 percent, and structures with five or more housing units declined by 3.7 percent. Nonresidential construction permits, however, declined by only 2.8 percent. The value of building construction authorized in Kentucky, also shown in Table 1, declined by 23.5 percent in the residential sector, and by 17.2 percent in the nonresidential sector. Additions and alterations, which always tend to move counter to new construction, were valued at $149.5 million in 1981, a 63.3 percent increase from 1980; the bulk of the increase was in nonresidential activity. This large increase in additions and alterations follows an increase of over 70 percent between 1979 and 1980.

(continued on the following page)

**L. Randolph McGee is Director and Robert E. Spoerl is Research Associate, both of the Kentucky Real Estate Research Center, University of Kentucky.*

TABLE 1

PRIVATE BUILDING CONSTRUCTION AUTHORIZED IN KENTUCKY
UNITS AND VALUES

Type of Construction	1980 Number	1980 Total Value[2]	1981[1] Number	1981[1] Total Value[2]	Percent Change Number	Percent Change Total Value
Residential Units	10,191	$351,538.2	7,612	$268,887.0	-25.3%	-23.5%
Single Family Dwellings	5,950	255,280.2	4,024	177,441.3	-32.4	-30.5
Multifamily Dwellings	4,241	96,258.0	3,588	91,445.7	-15.4	-5.0
Two Family	570	12,993.2	342	8,253.1	-40.0	-36.5
Three and Four Family	681	16,082.5	365	7,961.5	-46.4	-50.5
Apartments	2,990	67,182.3	2,881	75,231.1	-3.7	+12.0
Nonresidential Buildings	4,457	412,946.0	4,331	342,060.7	-2.8	-17.2
Hotels, Motels, Other Shelter	8	17,170.0	22	38,558.8	+175.0	+124.6
Amusement Buildings	50	9,231.6	28	3,494.4	-44.0	-62.2
Churches	72	14,167.8	41	7,852.2	-43.1	-44.6
Industrial Buildings	248	164,104.4	176	51,645.5	-29.0	-68.5
Commercial Garages	10	910.6	38	5,368.9	+280.0	+489.6
Residential Garages	1,198	8,415.7	2,118	9,372.9	+76.8	+11.4
Service Stations and Repair Garages	52	1,842.8	49	2,114.8	-5.8	+14.8
Hospitals and Other Institutional Buildings	21	32,026.2	21	50,998.5	0.0	+59.2
Office and Bank Buildings	185	89,006.8	188	102,045.3	+1.6	+14.7
Works and Utilities	24	7,377.3	14	2,735.2	-41.7	-62.9
Educational Buildings	11	1,861.6	14	3,153.0	+27.3	+69.4
Stores and Mercantile Buildings	346	55,302.4	307	53,185.7	-11.3	-3.8
Other Nonresidential Buildings	615	7,173.5	528	6,111.8	-14.2	-14.8
Structures Other Than Buildings	817	4,355.3	787	5,423.7	-3.7	+24.5
Additions and Alterations	6,357	91,594.3	6,176	149,538.3	-2.9	+63.3
Residential	4,689	27,634.8	4,377	27,868.1	-6.7	+0.8
Nonresidential	1,668	63,959.5	1,799	121,670.2	+7.9	+90.2
Total Building Construction		$856,078.5		$760,486.0	–	-11.2

[1] Preliminary.
[2] Thousands of Dollars.

SOURCE: United States Department of Commerce, Bureau of the Census, Construction Statistics Division.

At the national level, the total number of residential units authorized for construction during 1981 was 17.7 percent below the 1980 level; single-family units authorized declined by 21 percent and multifamily units declined by 12.9 percent.[3] As both Kentucky and the nation then, the current downswing has been more severe in single-family than in multifamily construction. The opposite was true of the 1974-75 recession in residential construction.

Construction costs, as measured by the construction materials component of the Producer Price Index, were approximately 6.2 percent higher, nationally, during 1981 than in 1980.[4] According to the Boeckh Building Cost Index for residential structures, the cost nationally for constructing a new single-family home increased an average of 9.9 percent in 1981. Table 2 gives the changes in residential construction costs during 1981 for five selected Kentucky cities.

High mortgage interest rates during 1981 continued to depress the housing sales market. This exacerbated the economic problems caused by the above-described and obviously-related decline in housing construction. Nationally, the contract interest rate for existing home mortgages averaged 14.62 percent during 1981, up from 12.58 percent in 1980. For new homes, the contract rate during 1981 averaged 14.17 percent, compared with 12.25 percent for 1980.[5]

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TABLE 2

RESIDENTIAL CONSTRUCTION COSTS
1980-81

	Percent Change
Bowling Green	7.8
Frankfort	12.6
Lexington	7.4
Louisville	9.7
Owensboro	7.2
National Average	9.9

SOURCE: *Boeckh Building Cost Index Numbers.*

New Dimensions in Fiscal Federalism

by Don M. Soule*

What is a desirable distribution of activities between the federal government and the state and local governments? That question is one that dates at least as far back as colonial America, and finds many answers at the opinion level. An informed opinion requires knowledge of the expected effects of any change in the distribution of governmental powers and responsibilities—that is, a change in federalism. This brief article describes some of the important changes that would likely occur in tax burden distribution and in income distribution if, as President Reagan has proposed, federal government activities were decreased and greater emphasis was placed on state and local governments for provision of public services. The desirability of these changes is a subject beyond the scope of this article.

The system of federalism established in this nation in 1789 retained most governmental activities at the state and local government levels and assigned only a limited role to the federal government. With only slight enlargement of the federal role over the decades, this division of functions was essentially retained until the 1930s when the Great Depression caused state and local governments to suffer very severe decreases in revenue. Beginning in the Roosevelt Era and continuing until recently, many traditionaliy state and local programs were either transferred to the federal government or, if retained as state or local programs, were financed partly with federal funds. Many new programs were either wholly federal or, if state or local programs, were substantially financed with federal aid. The increased federal role was justified mainly by the perceived *inability* or *unwillingness* (or both) of states and localities to provide services in the amounts, types, and qualities judged as necessary for the entire nation's welfare.

Inability to provide adequate services is mainly related to fiscal disparity—the wide differences among states and among local areas in taxable values per person, and to mismatching—the differences in distributional patterns of the people and businesses who cause the need for governmental services and of the taxable values that finance the services. Some state and local areas have taxable values more than adequate for their needs while others are inadequate in this respect.

Unwillingness to spend, even if taxable values are adequate, is mainly explained by the externality or spillover phenomenon. The total amount of a good or service that will be purchased by a group of individual decision-making units (people, businesses, or governments) is the sum of the amounts that are judged to be best in the opinion of each unit, acting independently. An individual unit (unit X) makes its decision to purchase by comparing only the costs *it* would incur and the benefits *it* would receive if it were to purchase the good or service. It often is the case, however, that purchase of a good or service bestows benefits over a broader group than the individual unit making the purchase decision. If the individual unit (the one considering whether to purchase) is aware of only the benefits it would receive, and not the benefits that others would receive, the diffused benefits would not enter into the purchase decision. The benefits that would "spillover" to others, if unit X were to purchase, are "external" to X in making its purchase decision. Because the purchase decision is based on only the benefits it sees, X purchases a smaller quantity of the good or service than could be justified by the total benefits to all groups. But the group's decision to purchase is merely the sum of all individual purchase decisions. Consequently, the total amount purchased by the group is too small because each individual unit neglects the spillover benefits.

For example, the benefits that would be created by a pollution-reduction program would be spread over an area broader than a particular local or state government. Yet in a situtation where each governmental unit bases its decision to purchase a pollution control system primarily on the benefits to be received by its own area, the probable result is that each governmental unit, acting independently, would spend less on such projects than it would if it related the purchase decisions to the benefits of the project for the larger area of which the local unit is a part. Effectively, the total purchases of pollution-reduction programs by all individual governmental units would be too small relative to the total benefits that could be received by all governmental areas, as a group. Indeed, it is possible that no pollution-control expenditures would be made by the local governmental units.

In their many variations, these two arguments—inability to purchase and unwillingness to purchase—are the most important justifications for nearly all governmental expenditure programs. They also are basic supports for federal provision, or financial supplementation, of services and programs that historically have been considered, in the United States, as most properly provided by state or local governments.

Contemporary U.S. federal government expenditures can be divided into three broad groups: (1) purchases of goods and payments for services; (2) income-increasing payments to individuals (and businesses) based on some judgment that incomes otherwise would be so inadequate as to impair the nation's welfare; and (3) payments to state and local governments designed to raise their spending levels to acceptable national standards. Beginning in the 1930s and continuing until recently, the federal government has greatly expanded the second and third categories of expenditures.

Proposals for a "new fiscal federalism" have therefore rekindled the discussion of whether a federal system should emphasize responsibility of the federal government or the responsibility of state and local governments in regard to

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selected indicators OF ECONOMIC A

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	Oct. 1981	Nov. 1981	Dec. 1981	Qtr. IV 1981	% Chg. 81-III 81-IV	% Chg. 80-IV 81-IV
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ALL ITEMS	279.90	280.70	281.50	280.70	1.43	9.58
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), FOOD AND BEVER	270.30	269.90	270.50	270.23	0.12	4.99
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), HOUSING	303.50	304.20	305.20	304.30	1.39	11.09
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), APPAR & UPKEEP	191.50	191.30	190.50	191.10	1.87	3.75
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), TRANSPORTATION	287.20	289.10	289.80	288.70	1.71	11.58
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), MEDICAL	304.80	308.20	310.20	307.73	2.97	12.16
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ENTERTAINMENT	225.50	226.80	227.30	226.53	1.83	7.18
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), OTHER	245.20	245.90	246.70	245.93	3.48	10.30
CONSUMER PRICE INDEX (CPI-U), SPECIAL INDEX: ENERGY	414.90	414.10	414.60	414.53	-0.42	12.59
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL FINISHED GOODS	274.00	274.50	275.30	274.60	1.10	7.15
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	274.70	274.90	275.60	275.07	0.68	6.64
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	309.30	309.00	309.60	309.30	-0.04	6.81
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	290.30	289.60	289.70	289.87	0.20	5.68
PRODUCER PRICE INDEX, CRUDE MATERIALS	320.30	314.10	311.60	315.33	-5.18	-2.56
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	245.60	238.30	233.70	239.20	-8.28	-13.33
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,SPOT(1967=100)	437.70	435.30	434.40	435.80	0.37	9.69
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,CONTRACT(JUNE78=100)	143.20	144.00	145.00	144.07	1.10	7.09
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	20.60	20.95	20.71	20.75	4.23	18.11
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	47.97	46.64	46.37	46.99	1.35	17.40
AVG PRICE FOR ELECTRICITY, PER 500 KWH	34.87	34.92	34.96	34.92	-3.47	13.57
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.23	1.23	1.25	1.24	-0.59	19.65
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.35	1.35	1.35	1.35	-0.17	10.23
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.30	1.30	1.29	1.30	-1.04	8.84
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.37	1.37	1.36	1.37	-0.70	9.23
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.46	1.46	1.46	1.46	0.76	11.99
LABOR FORCE (SEASONALLY ADJUSTED)						
LABOR FORCE, CIVILIAN (MILLIONS)	109.01	109.27	109.18	109.16	0.45	1.52
EMPLOYMENT, TOTAL (MILLIONS)	100.34	100.17	99.61	100.04	-0.61	0.55
EMPLOYMENT, AGRICULTURE	3.38	3.37	3.21	3.32	-1.44	-2.54
EMPLOYMENT, NONAGRICULTURAL INDUSTRIES	96.96	96.80	96.40	96.72	-0.58	0.66
UNEMPLOYMENT RATE, TOTAL	8.00	8.30	8.80	8.37	13.57	12.56
UNEMPLOYMENT RATE, BLACKS & OTHER RACIAL MINORITIES	15.20	15.20	15.70	15.37	6.47	11.62
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT (B $) (% CHG AT ANNUAL RATE)	NA	NA	NA	2995.39	4.15	9.69
U.S. REAL GROSS NATIONAL PRODUCT (B 72$) (% CHG AT ANNUAL RATE)	NA	NA	NA	1497.60	-4.72	0.81
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B $)	2474.70	2492.00	2490.90	2485.90	7.44	10.18
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	128.60	128.20	127.80	128.20	-3.83	-5.71
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	149.10	146.30	143.20	146.20	-4.47	-1.70
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	13.87	11.27	10.93	12.02	-20.30	-12.30
PRIVATE HOUSING UNITS AUTH. 1600 PERMIT-ISSUING PLACES (SADJ THOU)	722.00	723.00	789.00	2234.00	-47.78	-43.67
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B $)	328.83	328.94	333.06	330.28	1.75	6.69

CTIVITY

KENTUCKY DATA

	Oct. 1981	Nov. 1981	Dec. 1981	Qtr. IV 1981	% Chg. 81-III 81-IV	% Chg. 80-IV 81-IV
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1679.61	1682.72	1665.96	**1676.10**	1.12	-0.48
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1562.32	1534.17	1508.39	**1534.96**	0.20	-1.10
EMPLOYMENT, AGRICULTURAL	86.50	70.90	54.80	**70.73**	-9.70	-2.84
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1475.82	1463.27	1453.59	**1464.23**	0.73	-1.02
UNEMPLOYMENT RATE	7.00	8.80	9.50	**8.42**	11.18	7.41
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1208.70	1201.60	1193.50	**1201.27**	1.19	-1.70
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	48.40	49.00	48.70	**48.70**	1.39	2.31
EMPLOYMENT, CONTRACT CONSTRUCTION	53.10	52.80	48.70	**51.53**	-4.98	-16.02
EMPLOYMENT, TOTAL MANUFACTURING	275.00	263.30	255.60	**264.63**	-3.89	-2.82
EMPLOYMENT, MANUFACTURING, DURABLE	154.10	143.80	134.90	**144.27**	-6.10	-4.77
EMPLOYMENT, MANUFACTURING, NON-DURABLE	120.90	119.50	120.70	**120.37**	-1.10	-0.36
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	67.70	67.40	67.30	**67.47**	-0.30	-0.93
EMPLOYMENT, WHOLESALE & RETAIL TRADE	257.80	262.60	268.30	**262.90**	1.99	-1.93
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	51.30	51.40	51.30	**51.33**	-1.22	-2.84
EMPLOYMENT, SERVICES (SIC 70-80)	217.70	217.10	216.30	**217.03**	1.50	1.04
EMPLOYMENT, CIVILIAN GOVERNMENT	231.80	232.40	231.90	**232.03**	8.92	0.32
EMPLOYMENT, STATE & LOCAL GOVERNMENT	192.40	193.00	192.50	**192.63**	10.60	-0.33
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	38.90	37.80	38.60	**38.43**	-1.54	-4.79
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	38.80	36.80	38.50	**38.03**	-2.14	-6.63
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	38.90	39.10	38.70	**38.90**	-0.93	-2.59
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	8.09	8.02	7.99	**8.03**	1.09	4.87
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	8.83	8.74	8.76	**8.78**	1.78	6.86
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	7.13	7.22	7.16	**7.17**	1.08	3.07
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	314.70	303.16	308.41	**308.76**	-0.46	-0.15
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	342.60	321.63	337.26	**333.83**	-0.38	-0.22
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	277.36	282.30	277.09	**278.92**	0.14	0.41
INDEX OF PRICES RECEIVED BY KY FARMERS (1972=100)						
INDEX OF PRICES REC'D BY KY FARMERS, CROP AND LIVESTOCK PRODUCTS	175.48	184.99	183.14	**181.20**	1.16	0.68
INDEX OF PRICES REC'D BY KY FARMERS, LIVESTOCK PRODUCTS	143.74	142.64	137.86	**141.41**	-7.47	-15.15
INDEX OF PRICES REC'D BY KY FARMERS, CROPS	195.40	211.59	211.56	**206.18**	5.38	9.48
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	12.39	10.22	10.51	**33.12**	1.55	14.04
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	5.06	3.82	3.85	**12.73**	1.29	28.11
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	13.28	13.14	13.20	**13.21**	3.47	16.70
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	690.56	700.36	675.84	**688.92**	14.64	47.84
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	52.00	53.30	51.20	**52.17**	10.84	26.72
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	22.34	18.73	21.28	**62.35**	*	36.00
CONSTRUCTION (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	126.10	82.60	125.40	**334.10**	-46.24	-32.12
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1-FAMILY RESID. UNITS	262.00	179.00	175.00	**616.00**	-38.15	-54.51
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1-FAMILY RESID. UNITS	11.76	8.10	7.94	**27.80**	-34.71	-54.80
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	359.00	471.00	595.00	**1425.00**	-29.25	-34.51
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL RESID. UNITS, TOTAL	15.48	14.27	16.49	**46.24**	-36.97	-45.84
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	69.09	62.93	61.70	**193.72**	*	5.76
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	9.75	8.61	5.42	**23.79**	*	-47.40
FINANCE AND INSURANCE (MILLIONS OF DOLLARS)						
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	25.45	17.33	23.81	**56.59**	-29.69	-63.84
SALES OF ORDINARY LIFE INSURANCE	483.58	442.43	529.89	**1455.90**	14.78	24.71
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX & NONTAX RECEIPTS, GENERAL FUND, TOTAL	165.73	213.14	198.94	**577.80**	*	17.13
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	58.03	58.80	57.56	**174.38**	*	8.21
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	45.40	66.08	47.43	**158.91**	*	14.73
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	10.87	3.76	26.85	**41.47**	*	4.80
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	27.62	24.48	28.00	**80.10**	*	-12.01 **
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	16.54	14.09	18.29	**48.92**	*	-0.15
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	8.02	7.62	7.55	**23.19**	*	6.93

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
LIFE INSURANCE MARKETING & RESEARCH ASSOCIATION, SALES OF ORDINARY LIFE INSURANCE;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 16,000 PERMIT-ISSUING PLACES.

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

** SEE THE 'NEWS & NOTES' COLUMN OF THIS ISSUE.

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transportation (groups that are above average in wages relative to the Kentucky average wage), wages are below the national average for those groups, ranging from 73 to 84 percent. Mining wages in 1979 were 177 percent of the all-Kentucky average and 139 percent of the all-U.S. average, but were only 84 percent of the U.S. mining average.

A final comparison can be made to demonstrate the consequences of Kentucky's industrial distribution of employment for Kentucky's relative national position in per capita personal income. The Kentucky employment distribution for *1970* can be multiplied by the *1979* and *1980* average wages, by industry groups, to suggest Kentucky's total wage level in 1979 and 1980 *if* there had been no change from the 1970 industrial distribution of employment. These computed average wage levels for 1979 and 1980, referred to as the hypothetical average wages, are computed in Table 5 for Kentucky and in Table 6 for the nation. Guidelines can be given for interpretation. If, say for 1979, the actual average Kentucky wage were lower than the hypothetical average wage, Kentucky would be shown to have lost by the changes in industrial distribution of employment between 1970 and 1979. But if the loss for Kentucky were a smaller percentage of average wages than the loss for the nation, Kentucky would be shown to have gained relative to the nation because of the changes in employment distributions among industry groups. In fact, these are the results shown in Tables 5 and 6.

For Kentucky in 1979 and 1980, actual average wages were $11,926.60 and $12,948.60, respectively. But when the 1979 and 1980 average wage rates by industry groups were multiplied by the 1970 distribution of employment among groups, the average wages were changed to $11,947.69 and $13,049.53. Consequently, Kentucky lost slightly in average wages by the industrial shift from 1970 to 1979 and 1980. As percents of average wage, the losses were 0.2 percent in 1979 and 0.8 percent in 1980. Similar computations in Table 6 for the United States show losses of 1.0 percent in both 1979 and 1980. Both Kentucky and the nation lost slightly, but the loss for Kentucky was less than for the nation. Kentucky fared slightly better than did the nation in the wage-income changes resulting from changes in the industrial distribution of employment from 1970 to 1979 and 1980.

Failure of Kentucky to register a large gain from changes in the industrial distribution of employment is one important reason why Kentucky's level of per capita personal income was still below the national average in 1979 (82 percent) and in 1980 (80 percent). As a general principle, one state in a nation can improve its position, relative to the nation, in per capita personal income if its industrial distribution of employment changes relative to that of the nation, provided the change is such as to emphasize employment in the high-wage industry groups. That is, a state not only must increase its employment emphasis in the high-wage industry groups but also must do this to a greater degree than does the nation. Because Kentucky did this only slightly, its level of per capita personal income received only a slight boost from the change in employment distribution among industries between 1970 and 1980.

TABLE 5

AVERAGE WAGE EFFECTS FROM CHANGE IN INDUSTRIAL DISTRIBUTION OF EMPLOYMENT, KENTUCKY, 1970 TO 1979 AND 1980

	1970	1979		1980	
Industry Group	(1) Employment as Percent of Total	(2) Average Wage	(3) Hypothetical Total Wages[1] (1 x 2)	(4) Average Wage	(5) Hypothetical Total Wages[1] (1 x 4)
Mining	2.753	$21,102.70	$ 58,094	$23,132.50	$ 63,681
Construction	5.021	14,671.60	73,667	16,337.00	82,029
Manufacturing	24.519	14,814.90	363,253	16,280.00	399,174
Transportation	5.862	17,383.90	101,912	18,731.30	109,811
Trade	18.582	9,079.90	168,727	9,818.20	182,447
Finance	3.479	11,549.50	40,182	12,794.30	44,512
Services	16.257	8,068.50	131,167	9,100.20	147,939
Government	23.282	10,995.10	225,985	11,742.80	273,392
Miscellaneous	0.248	7,192.10	1,782	7,943.50	1,968
Total	100.003	–	$1,194,769	–	$1,304,953
		Actual	Hypothetical	Actual	Hypothetical
Average Wage		$11,926.60	$11,947.69	$12,948.60	$13,049.53

[1] Assume 100 workers who, in 1970, were distributed among industry groups as in column 1. If the distribution were the same in 1979 as in 1970, the 2.753 workers in mining would each have earned $21,102.70 (column 2) for total wages of $58,094 (column 3). Total wages for the 100 workers would be $1,194,769 (column 3 total), for a hypothetical average wage of $11,947.69. Comparing the 1979 actual average wage of $11,926.60 (column 2) with the hypothetical average wage, Kentucky is shown to have lost $21.09 in wages per average worker, or 0.2 percent of the actual average wage because of the change between 1970 and 1979 in the industrial distribution of employment.

TABLE 6

AVERAGE WAGE EFFECTS FROM CHANGE IN INDUSTRIAL DISTRIBUTION OF EMPLOYMENT, UNITED STATES, 1970 TO 1979 AND 1980

	1970	1979		1980	
Industry Group	(1) Employment as Percent of Total	(2) Average Wage	(3) Hypothetical Total Wages[1] (1 x 2)	(4) Average Wage	(5) Hypothetical Total Wages[1] (1 x 4)
Mining	0.812	$25,246.60	$ 20,493	$28,046.60	$ 22,766
Construction	4.613	20,104.10	92,733	21,596.40	99,617
Manufacturing	25.128	18,368.00	461,554	20,400.30	512,623
Transportation	5.839	22,156.90	129,366	24,146.20	140,981
Trade	19.775	12,074.40	238,772	13,119.10	259,431
Finance	4.841	16,920.40	81,903	18,588.20	89,976
Services	17.631	13,268.90	233,946	14,706.90	259,300
Government	20.973	12,786.40	268,163	13,903.90	291,600
Miscellaneous	0.390	11,945.70	4,655	12,520.40	4,879
Total	100.002	–	$1,531,585	–	$1,681,173
		Actual	Hypothetical	Actual	Hypothetical
Average Wage		$15,164.70	$15,315.85	$16,595.90	$16,811.73

[1] If the 1970 distribution of employment among industry groups (column 1) is multiplied by the 1979 average wages by groups, the hypothetical average wage for all employment in 1979 is $15,315.85. Subtracting the 1979 actual average wage leaves $151.15, which is 1.0 percent of the actual average wage. Because of the change in industrial distribution of employment between 1970 and 1979, the actual average wage for all U.S. workers was slightly lower (1.0%) than it would have been had the employment distribution remained unchanged.

Notes

[1] Disaggregated wage and salary personal income estimates at the state level for 1981 will not be available until later this year.

[2] The primary source agency for all the data analyzed in this article is the Bureau of Economic Analysis, U.S. Department of Commerce. The personal income data have been drawn from the Kentucky Economic Information System. All industry-level data represent wage and salary (excludes proprietors) employees and wage and salary income. Calculations are the author's, with the assistance of Dee-Fu Chen.

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these kinds of expenditures. Federalism is a broad concept dealing with many aspects of governmental design; fiscal federalism concerns the more practical features of federalism and deals with how the desired division of expenditure responsibilities can be reconciled with the actual division of revenue powers.

Fiscal federalism refers mainly to the expenditures for group three above, but sometimes also is related to group two. For example, federal expenditures in group two give direct aid to individuals, whereas expenditures in group three give aid to state and local governments who in turn may give aid to individuals. A reduction in federal payments to individuals, as in the Social Security and the Supplemental Security Income programs, may require that state governments spend more of their own revenue for aid to the aged, the disabled, and the poor, if these people are to receive comparable support as before the federal reduction. In the main, however, fiscal federalism refers to group three expenditures–intergovernmental revenue transfers or, more simply, federal aid.[1] The proposed new federalism has many complicated details. The essential proposal is to make federal aid programs smaller and less complicated, by transferring responsibility for programs to the state and local governments, and by setting general, instead of specific, rules for use of federal aid funds.

The following discussion of fiscal federalism–both old and new–is in three parts: a description of reasons for federal supervision of state and local governments when spending federal aid money, an analysis of the income redistributional aspects of governmental tax and expenditure policies generally and federal aid particularly, and a presentation of important questions raised by current proposals to modify fiscal federalism. *(continued on the following page)*

Reasons for Federal Supervision

Federal aid programs (both to individuals and businesses and to state and local governments) are characterized by detailed rules regarding eligibility, use of funds, etc. The logical basis for these rules, as well as some problems expected in the new fiscal federalism, can be described in familiar terms by relating them to common personal situations. When one person is asked to give aid to another person, several obvious and age-old questions arise: Why does the solicitor need aid? What is the degree of need? Will he spend the aid for the need that justifies the aid? And, how can aid be given without discouraging future income-earning activities? The giver might fear, for example, that the solicitor prefers not to work but instead to live from gifts which can be obtained on the pretense of feeding his hungry children but which may instead be spent for wine. Also, the aid may encourage continued conduct of this nature. But desiring nevertheless to aid the children, because they are indeed hungry, the aid may be given in food instead of money, and only after some work has been performed. Similarly, parents might offer to pay only part of the cost of a bicycle, intending thereby to encourage their child to work and save for the purchase and also to take good care of the bicycle because of the memory of hard work. A complete gift might not encourage these worthy activities.

Similar questions arise regarding federal aid to state and local governments. From time to time, proposals are made that aid be given unrestrictedly, to be spent by the recipient state and local governments as if raised by their own taxation. Depending upon the federal tax types and aid distributional patterns used, such a *general* revenue sharing program would have important effects on income distribution, as explained later in this article. But serious questions would arise. Is there a need for federal aid? Why is the aid needed? Is the amount of aid related to the degree of need? Will the money be spent wisely and only for the needs that justify the aid? And will the aid be offset by decreased state and local governmental tax effort? Most federal aid programs, therefore, have provided funds for narrowly defined purposes, with amounts of aid tailored to the degrees of need, and with required matching expenditures by state and local governments from their own taxation. These are referred to as *categorical* aid programs.

Categorical aid programs reduce the fears expressed in the familiar questions outlined above. Problems arise however because of the complications of administration and of compliance regarding the large number of different programs, with complex rules in each program. Also, these detailed aid programs are criticized because they tend not to fit the needs of the large number of diverse units of state and local government. Critics of categorical aid programs argue that general aid programs, in contrast, would better allow state and local governments to spend the federal aid money according to local, rather than national, perceptions of needs. But general aid neither assures efficient use of funds nor prevents offsetting reductions in state and local tax effort. It also might not address the specific needs for which the detailed aid programs were intended.

A major aim of many of the new federalism proposals is to return expenditure decisions to the state and local governmental levels. This could be accomplished by reducing or eliminating federal aid, thereby forcing state and local governments to limit expenditures to only those services whose benefits justify the state or local tax burdens—from the state or local point of view. A less harsh version of this proposal would continue federal aid programs but change them from categorical to general, wherein expenditure decisions would be made by the recipient governments without federal rules. Other reforms propose general aid programs that nevertheless attempt to maintain minimum national standards as to service levels and spending efficiency. Often also included are aid distribution formulas that favor governmental units high in expenditure needs or low in taxable values.

Effects on Income Distribution

If the value of governmental expenditure benefits received is compared with the cost of tax burdens borne, for the total of federal, state, and local governments, those households low in economic values (such as income and property) lose and those who are above average gain, if: (a) the size of total governmental expenditures is reduced or (b) total governmental expenditures are financed less by federal taxes and more by state and local taxes. That is, the results in either case would be an increase in the degree of inequality of individual income distribution because, for reasons to be explained, governmental tax and expenditure policies are inherently redistributional. Moreover, the degree of redistribution is larger for the federal than for the state and local tax and expenditure systems. Insofar as the new fiscal federalism would reduce total government spending, or would emphasize state-local taxation while deemphasizing federal taxation, the total of personal income in the nation would be distributed among households even more unequally than at present.

Why are governmental tax and expenditure policies inherently redistributional, and why are these effects more powerful at the national than at the state-local levels? The explanation concerns first, the general patterns of tax burden distribution for the federal and the state-local tax systems and second, the inherent redistributional effects of governmental finance.

Many careful studies by qualified specialists over many years have established, with minimum disagreement, that the state and local tax systems are regressive while the federal tax system, because of heavy reliance on net income taxes, is progressive.[2] The total of federal, state, and local taxes is a combination of regressive and progressive taxes. It is believed to have a proportional burden distribution throughout most of the income range but perhaps to have some progression at the extremes of low and high incomes. But this overall proportional distribution would be changed to a regressive distribution if the federal share of total taxation were reduced and the state and local shares increased. It is possible, of course, that decreased emphasis on the federal net income taxes might encourage state and local governments to increase their use of net income taxes, leaving the overall burden distribution unchanged. But if state and local taxation continued on its historical course, a more regressive distribution of total taxes would result.

The distributional pattern of total individual income among households is affected by the distributional pattern of taxation, with more reduction in inequality occurring with progressive than with regressive tax systems. Even proportional or regressive tax burden distributions, however, can have the effect of reducing income inequality. Governmental tax and expenditure policies are inherently redistributional (cause less income inequality) and the degree of redistribution increases as tax and expenditure policies are applied uniformly over broader geographic areas. These effects, which at first seem contradictory, can be explained by comparing *dollars* of "tax burdens borne" with *dollars* of "governmental expenditure benefits received" as they vary among households and governmental areas that differ in levels of taxable values.

Taxation and governmental expenditures would have no income redistributional effects if there always was a match between dollars of tax burden borne and cost of governmental services received, for the taxpayer or group of taxpayers concerned. But governmental rules regarding taxes and expenditures almost never cause these to be matched. Indeed, fundamental concepts of fairness in governmental policy require that taxation policy and expenditure policy each be according to separate sets of rules.[3] Within a particular government's area of jurisdiction, services must be provided among all recipients without regard to their tax contributions, and tax revenue must be raised without regard to services received by the taxpayers. Because of the separation of tax and expenditure rules, it is almost always the case that taxpayers who are low in taxable values (income, property, purchases, etc.), bear fewer dollars of tax burdens than the cost of the governmental services they receive. This excess of benefits over costs is financed by the opposite relationship for taxpayers who are high in taxable values. Income redistribution of this nature arises when a particular good or service is provided by a local government out of tax revenue instead of being sold in the market on a pay-for-what-you-get basis. As the scope of government is expanded from local to state to federal, the degree of income redistribution is increased because of changes in the types of taxes used and of the larger range of differences among the taxable values involved.

A simple example may concern provision of garbage service. If households R and P, in a local area, both purchased garbage service from a private company, there would be near equality in cost of providing service and probably equality of price at, say, $200. But if garbage service were made a governmentally-provided service financed out of property tax revenue, fundamental rules of taxation would require that all households in a particular local governmental area be subject to the same percentage tax rate applied to property that is uniformly valued as percentage of full value. Household R ($100,000 house) would pay more in dollars of property tax than would household P ($50,000 house) because R and P differ in property values. Garbage service would be provided according to one set of rules (equal service per household) whereas tax revenue to finance garbage service would be collected according to another set of rules (an equal percentage tax rate applied to property).

Income redistribution can also occur between local areas that differ in average levels of taxable values, by the method of combining their governments into a single government. The local areas with high average taxable values would pay the same percentage tax rate as the areas with low average taxable values, without necessarily receiving more services. Federal aid programs exhibit a high degree of income redistribution because: (a) federal income tax laws result in more dollars of tax revenue in states with higher incomes like Connecticut, than they do in states with lower incomes like Mississippi; and (b) federal aid is distributed in a manner to favor the lower income areas. In any case of taxation and government expenditures, income redistribution occurs so long as governmental expenditures (as services or as aid) are distributed among households or areas, not with the intention of matching tax collections, but instead, of achieving broadly defined social objectives such as provision of uniform service minimums.

Why, in addition to the reasons explained, are the redistributional effects larger if taxing and spending are by a government with a large geographical area? The primary reason is that broad-area governments can use tax types and can follow tax policies not available, in a practical sense, to small-area governments. This effect was mentioned earlier regarding the progressive nature of the federal tax system and regressive nature of state and especially local tax systems. Probably the main reason why a local government, with a small taxing area, uses regressive tax types is mobility of the more wealthy taxpayers who would be the targets of progressive taxes. A person with a large income, or someone who lives in an expensive home, or a business with large values of real and personal property, can avoid the higher tax rates of one state or locality merely by locating elsewhere. Indeed, state and local governments actively compete to attract businesses and households of high taxable value by emphasizing taxes that are low or not aimed at high value taxpayers.

Also prejudicial to progressive taxation by small governmental units are the high administration costs of dealing directly with individual households. The federal and state individual income taxes apply graduated rate schedules to household incomes that have been adjusted for ability to pay differences. Tax "tailoring" of this nature requires contact between the collecting agency and the individual households. In contrast, the local "income" or occupation tax used by Kentucky cities (actually an individual earnings and business net profits tax) does not apply to the non-wage income of individuals because the individual tax is collected, not by contacting each household but instead by taxing employers' payrolls and allowing firms to deduct the tax from workers' paychecks. Also, there are no family-size exemptions, graduated rates, or other features common to net income taxes which allow the tax burdens to be varied among households according to ability to pay. Likewise, the 3 percent county-wide tax on utility service is widely used by Kentucky local governments because it can be easily and cheaply collected from the utility companies with no contact with individual households.

For the several reasons described, a more regressive total tax burden distribution can be expected if the new fiscal federalism causes relative decline in the size of total government expenditures or in the role of federal taxation. Some of this change toward regression could be avoided if the transfer

of service programs from the federal to the state and local governments was accompanied by federal aid. As previously explained, federal aid would likely be redistributional for two separate reasons: aid distribution formulas usually are more favorable to states and localities the lower their incomes; also, the federal tax system collects fewer dollars per average household in low income states and localities. That is, redistribution occurs in both the tax and expenditure processes. But proposals for new fiscal federalism often include an important proviso that the federal share of total taxation be reduced, suggesting that a regressive change in total tax burden distribution would result.

Questions Raised by the New Fiscal Federalism

The analysis above is intended as background useful for suggesting questions and problem areas that might arise from changing the way that provision of services is distributed among governmental levels and how the costs of these services are shared via the tax systems of federal, state, and local governments. The questions and problem areas fall into several groups: the unwillingness and/or the inability to purchase adequate amounts of governmental services; the costs of administration, compliance, and disincentive effects; and the comparative levels and growth rates for governmental services in this and other nations.

(1) How serious is the unwillingness-to-purchase problem related to the fact that it is caused generally from benefits spilling over to a broader group than the individual unit that decides whether and how much to purchase? Of concern are the degrees of spillover, the severity of social welfare reduction if purchases are inadequate, and the breadth of geographical area over which the public interest requires uniformity of service at some minimum level. Inadequate purchase of one type of product or service might only inconvenience the public, while the inadequate purchase of other services might damage the public. And if benefit spillovers cause too few resources to be used for particular purposes, with damage to the public, over how broad a geographical area does the public interest require uniform minimum service levels? Should sewage systems (or education, highway, mental health services, etc.) have uniform minimum standards over the entire nation, or only within states, or not uniform within states?

(2) In a similar manner, how severe is the inability-to-purchase problem caused by differences among households in individual income and among states and local areas? In a modern urban-industrial economy, a family with two adults and eight children does not necessarily earn more income than a smaller family even though service needs most likely are larger for the large family. Likewise, concentrations of low economic property or income values in particular states or localities are not necessarily matched by low levels of service needs. But how important are the inadequacies of purchases if viewed from the broad social point of view of a state or a nation of 50 states? Inadequate purchase of some goods and services have greater social consequences than of others, and broadness of geographical areas of concern may vary among different types of goods and services.

(3) Common to both the unwillingness and ability problems are two problems related to size of government—administration and compliance costs, and the possible discouraging effects on economic incentives. An important general question, therefore, is: do governmental tax and expenditure policies, including fiscal federalism, yield enough benefits to justify the additional costs of administration, compliance, and the possible disincentive effects?

(4) Related to possible solutions, two important questions relate to differences among nations and changes over the decades regarding size and growth rates of governments. To what extent has growth in federal aid been related to changes occurring over the decades in size and density of population and change from a rural-agricultural economy to an urban-industrial economy? Are the size and growth rate of government in this nation substantially different from those in other industrial nations? The Advisory Commission on Intergovernmental Relations recently published a series of studies of other nations with federal systems, including Canada, Australia, and West Germany.[4] Although remarkable similarities are shown, there also are interesting differences in problems and solutions in the fiscal aspects of federalism. Over the decades, many changes have occurred in the United States and other nations in the types of services considered appropriate for governmental concern and in the breadth of geographical area over which national concern is felt. Within the continuing and worldwide growth in governmental centralization, however, there is much room for discussion about changing governmental roles in a particular nation.

Notes

[1] For a discussion of the ways in which federal aid impacts the Kentucky economy see the article by the author, "The Importance of Federal Aid to the Kentucky Economy" in the December 1981 issue of this publication. For studies of state-local finance problems, including fiscal federalism, see James A. Maxwell and J. Richard Aronson, *Financing State and Local Governments*, 3rd ed. (Washington, D.C.: The Brookings Institution, 1977); L. L. Ecker-Racz, *The Politics and Economics of State-Local Finance* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1970); Kenneth E. Quindry and Niles C. Schoening, "Changing Relationships in the American Federal System," *Growth and Change*, Vol. 12, No. 4, October 1981, pp. 33-42.

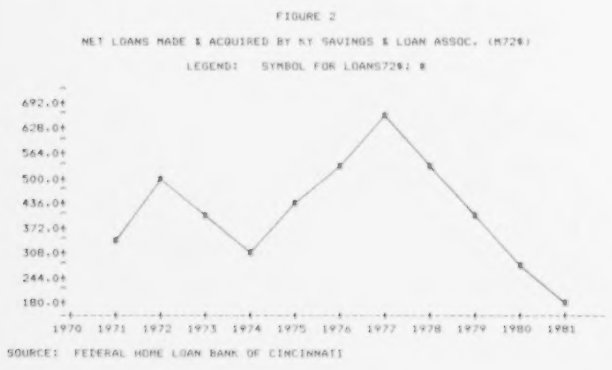
[2] Joseph A. Pechman and Benjamin A. Okner, *Who Bears the Tax Burden?* (Washington, D.C.: The Brookings Institution, 1974). By regression is meant a tax system wherein dollars of tax burden are decreasing percentages of household incomes as these incomes increase. Progression is the opposite of regression, and a proportional distribution is one with dollars of tax burden the same percentage of income for all levels of household income.

[3] See "Taxation" in the *Encyclopedia Britannica* (1973 edition), Vol. 21, pp. 723-28; and "Tax" in the *Encyclopedia Americana* (1980 International Edition), Vol. 26, pp. 316-21. Also see the chapters on "power to tax" or "constitutional aspects of taxation" in standard textbooks in public finance.

[4] *Studies in Comparative Federalism*, a series of three studies, on Canada, Australia, and West Germany, published in 1981 by the Advisory Commission on Intergovernmental Relations, a federal agency in Washington, D.C.

(continued from page 6)

Nationally, during 1981, the dollar volume of all mortgage loans closed by federally insured savings and loan associations on single and multifamily units (excluding buildings with five or more units) declined by 34.5 percent from 1980. The total value of all loans made and acquired by Kentucky savings and loan associations, corrected to 1972 dollars, shows the extent of this development in Kentucky for the period 1971-81. These values are plotted in Figure 2.



Notes

[1] "The Cost of the Current Real Estate Slump Hits One Quarter Trillion Dollars," *Real Estate Status Report*, Vol. 7, No. 2, February 1982, pp. 1-3.

[2] The actual index values for U.S. and Kentucky permit-authorized residential construction, 1972-81 are:

	United States	Kentucky
1972	100.0	100.0
1973	82.0	58.8
1974	48.4	42.6
1975	42.4	42.8
1976	58.4	53.8
1977	76.2	71.9
1978	81.1	64.6
1979	69.9	52.6
1980	53.6	41.5
1981	44.1	30.5

[3] U.S. Department of Commerce, Bureau of the Census, Construction Statistics Division.

[4] *Producer Prices and Price Indexes*, various 1981 issues.

[5] *Federal Home Loan Bank Board Journal*, Vol. 15, No. 2, February 1982, p. 52.

(continued from page 2)

A recent issue of *Growth and Change: A Journal of Regional Development* contains some articles of probable interest to our readers. These include "Rural Manufacturers' Characteristics and Probability of Plant Closings" by Robert Anderson and David L. Barkley, "Transportation and Political Fragmentation in Urban Regions" by James E. Clark, and "An Economic Analysis: The Impact of Public Employment Growth" by George Palumbo. Single copies and subscriptions to *Growth and Change* are available from the Associate Editor, 644 Maxwelton Court, Lexington, Kentucky 40506-0351.

* * *

There has been considerable revision and expansion of the database of the Kentucky Economic Information System (KEIS) during the past few months. Data recently revised include: all the rebenchmarked employment and earnings data for 1980 and 1981 (monthly, quarterly, and annual) and all the rebenchmarked state-level labor force, resident employment, and unemployment data, 1976-81 (monthly, quarterly, and annual). Series recently extended include: quarterly personal income and coal shipments data through the third quarter, 1981; general coal production data through 1981 (monthly, quarterly, and annual); disaggregated population (age, sex, race) for 1980; and tax receipts data through February 1982. The expansion consists of nearly 600 annual state-level data series (some are monthly and/or quarterly) related to the coal, electricity, natural gas and petroleum sectors. KEIS users are encouraged to obtain a new copy of the data bank index in order to have a more complete listing of these data.

* * *

KEIS training sessions have recently been held in Frankfort at the Lands Unsuitable for Mining office in the Bureau of Surface Mining, Department of Natural Resources and Environmental Protection and at the Center for Program Development, Bureau for Social Insurance, Department for Human Resources. Demonstrations have also been held for the staff of the Appalachian Development Center, Morehead University, and for faculty and students associated with the Division of Business Administration, Northern Kentucky University.

For further information about the KEIS, or to schedule a training session, please call the KEIS Manager (606-258-4626).

–moa–

KENTUCKY ECONOMIC INFORMATION SYSTEM

STANDARDIZED TABLE 10
KENTUCKY ANNUAL ECONOMIC DATABANK

LABOR FORCE, EMPLOYMENT AND UNEMPLOYMENT
(1980 AND 1981 ESTIMATES ADJUSTED TO MARCH 1981 BENCHMARK)

SERIES		1977	1978	1979	1980	1981
400	LABOR FORCE, TOTAL CIVILIAN	1550.00	1598.00	1607.00	1663.00	1662.00
401	LABOR FORCE PARTICIPATION RATE(LABOR FORCE/POP GTE 16)	60.98	62.08	61.41	61.17	NA
402	LABOR FORCE, RATIO OF EMPLOYMENT TO POPULATION	41.34	41.93	41.66	41.79	NA
404	UNEMPLOYMENT, TOTAL	72.00	84.00	89.00	133.00	140.00
405	UNEMPLOYMENT RATE	4.65	5.26	5.54	8.00	8.42
406	EMPLOYMENT, TOTAL BY PLACE OF RESIDENCE (INCLUDES PERSONS ON STRIKE)	1478.00	1514.00	1518.00	1530.00	1522.00
408	EMPLOYMENT, AGRICULTURAL	87.36	71.98	70.02	68.79	66.92
411	EMPLOYMENT, TOTAL NON-AGRICULTURAL	1390.64	1442.01	1447.97	1461.21	1455.07
412	EMPLOYMENT, NON-WAGE AND SALARY, NON-AGRICULTURAL (SELF-EMPLOYED)	147.82	150.95	150.75	144.97	141.74
413	EMPLOYMENT, PERSONS INVOLVED IN LABOR-MANAGEMENT DISPUTES	5.05	8.12	1.32	1.76	1.76
415	EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1148.17	1209.88	1245.29	1209.96	1193.22
416	EMPLOYMENT, MANUFACTURING, TOTAL	284.84	292.28	297.16	276.15	272.11
417	EMPLOYMENT, MANUFACTURING, DURABLE GOODS	161.18	167.68	171.95	154.81	151.62
418	EMPLOYMENT, MANUFACTURING, NONDURABLE GOODS	123.66	124.60	125.21	121.34	120.48
452	EMPLOYMENT, MINING (NO SIC)	48.61	52.06	54.54	52.80	50.46
453	EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	43.51	47.02	49.21	47.38	44.97
455	EMPLOYMENT, CONTRACT CONSTRUCTION	58.39	68.18	69.17	58.03	51.37
457	EMPLOYMENT, TRANSPORTATION (SIC 40-42,44-47)	37.60	38.93	40.73	38.52	36.78
458	EMPLOYMENT, COMMUNICATIONS (SIC 48)	14.75	15.57	16.36	16.46	16.36
459	EMPLOYMENT, ELECTRIC, GAS & SANITARY SERVICES (SIC 49)	12.18	12.74	13.06	13.46	13.96
461	EMPLOYMENT, WHOLESALE TRADE (SIC 50,51)	59.02	63.36	63.64	62.06	62.57
462	EMPLOYMENT, RETAIL TRADE (SIC 52-59)	188.55	200.83	204.49	198.81	195.75
463	EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	46.32	48.83	51.04	52.27	52.01
464	EMPLOYMENT, SERVICES (SIC 70-80)	185.92	196.77	204.77	210.48	214.67
466	EMPLOYMENT, CIVILIAN GOVERNMENT	211.98	220.31	230.32	230.92	227.18
467	EMPLOYMENT, FEDERAL GOVERNMENT, EXC. MILITARY	40.12	39.82	38.35	39.63	38.92
468	EMPLOYMENT, STATE & LOCAL GOVERNMENT	171.86	180.50	191.97	191.28	188.26
469	EMPLOYMENT, STATE & LOCAL GOVERNMENT, EXCLUDING EDUCATION	76.56	82.28	85.60	84.26	83.04
470	EMPLOYMENT, STATE & LOCAL EDUCATION	95.30	98.22	106.37	107.02	105.22
600	POPULATION, TOTAL KENTUCKY RESIDENT, AS OF JULY 1	3.57	3.61	3.64	3.66	NA

UNITS: POPULATION IN MILLIONS, RATIO OF EMPLOYMENT TO POPULATION AND UNEMPLOYMENT RATE GIVEN AS %S

LABOR FORCE DATA IN THOUSANDS OF PERSONS

SOURCE: KENTUCKY DEPARTMENT FOR HUMAN RESOURCES

Kentucky Economy: Review & Perspective
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University of Kentucky
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University of Kentucky, Lexington, Kentucky 40506-0034

June 1982
Vol. 6, No. 2

KCEA Review and Forecast

by Charles W. Hultman*

Although the recession's severity is reflected in several economic indicators, society's cost is best seen in the labor force statistics. The April national unemployment rate rose to a seasonally adjusted 9.4 percent; and these 10.3 million did not include another 1.34 million "discouraged" workers–those who have stopped looking for work. The May national unemployment rate of 9.5 percent was the highest experienced since the 9.9 percent annual rate for 1941.

In relative terms, Kentucky's unemployment situation has been even less favorable than the nation's. Using data not adjusted for seasonal variation, the April rate of 10.3 percent suggests improvement over the March rate of 10.7 percent. However, the seasonally adjusted unemployment rate for Kentucky was 9.9 percent for March and 10.3 percent for April. Thus the Kentucky and national unemployment situations worsened from March to April.

The timing and rate of national economic recovery will be determined in part by the federal budget that is adopted by Congress for fiscal 1983. The budget's impact will depend on decisions regarding the spending levels for defense and welfare, possible changes in Social Security, and estimated size of the deficit. Recovery will also be affected by the budget's impact on the level of interest rates, as well as on business perceptions regarding investment opportunities.

A key variable is interest rates. The Wharton Quarterly Model (dated May 25, 1982) projects the bank prime loan rate to average about 16 percent for 1982, declining to about 15.7 percent in 1983. Mortgage rates on new homes are expected to be slightly above the 1981 rate of 14.7 percent throughout 1982, declining to just below 14 percent in 1983 and to 12.7 percent in 1984.

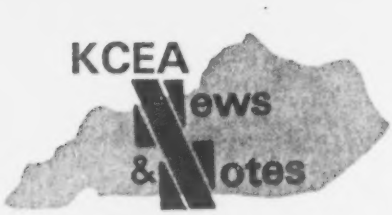
The Composite Index of Leading Indicators rose 0.8 percent in April, the first monthly increase in a year. The rise is a hopeful sign, but one month's slight increase taken by itself is not a strong indicator of economic recovery. The peak in national economic activity reached in early 1981 was only a partial recovery from the recession of 1980. The Wharton forecasters expect that when data are released later this summer, the trough of current economic activity will be shown to have occurred in the third or fourth month of 1982. The Wharton Model forecasts recovery during the second, third and fourth quarters of 1982, with real GNP rising by 2.02 percent, 4.59 percent and 3.09 percent, respectively. However, the unemployment rate tends to lag somewhat and will remain above 9 percent until the second quarter of 1983. The increase in the Consumer Price Index is projected to remain slightly above 5 percent for the next few years.

Kentucky's nonagricultural wage and salary employment of 1,164.7 thousand and total resident employment of 1,416.6 thousand in March (both unadjusted) do not compare favorably with earlier peaks reached in 1979 and 1980, respectively. In addition, resident employment reflects a substantial downturn from the March 1981 level of 1,499.4 thousand. An apparent downturn in Kentucky coal production since late 1981 should also be noted because of the importance of this industry to the state's economy.

A full, self-sustaining economic recovery in Kentucky will require favorable conditions in several sectors most severely affected in recent months. Wharton projects limited growth in nonresidential construction but a substantial increase in residential construction in 1983 and 1984 at the national level. Expansion in the Kentucky construction industry, which is in worse shape than a year ago, will help not only the building industry but also a wide range of sectors including major electrical appliances, construction equipment, and finance, insurance and real estate. Nationally, a significant increase is expected in the purchase of new domestically produced cars in 1983; this should also prove beneficial to the state.

Improvement is expected in economic conditions in the latter part of 1982 in Kentucky, but recovery is expected to be slow and gradual. The high level of nonagricultural wage and salary employment reached in 1979 may not be regained until at least late 1983. As important to the Commonwealth as recovery from the cyclical downswing are the prospects for continued long term growth. Secular expansion was particularly evident in the 1960s and first half of the 1970s. The state's advantages in energy, water, and natural resources availability must be supplemented by continued efforts to provide a favorable business climate, an educated and trained labor force, and favorable financial conditions for meeting capital requirements.

Charles W. Hultman is Chairman of the KCEA.



There has been expansion, revision, and updating of the database of the Kentucky Economic Information System (KEIS) during the past quarter. The most recent expansion was within the state-level annual bank (ABANK) and covers series related to motor vehicle registrations by type of vehicle, 1951 to present; and data for 1951-78, as available, from the *Annual Survey of Manufactures* (U.S. Department of Commerce) including value added by manufacturing at the two and three digit SIC level; and cost of materials, value of shipments, and expenditures on plant and durable equipment for manufacturing at the two digit SIC level. Other data newly available are drawn from the reports on Kentucky manufacturing developments, published annually by the Industrial Development Division of the Kentucky Department for Economic Development. They include disaggregated information for 1967-81 on new manufacturing plants, employment, and investment; manufacturing expansions, employment, and investment; and new supportive industries, employment and investment.

Revisions to the county database (CBANK) include all personal income data (34 series per county, Area Development District, Appalachian Kentucky, Kentucky and the U.S.), 1969-79. Data for 1980 have also been added. The revisions recently made by the source agency, the Bureau of Economic Analysis (U.S. Department of Commerce), are major and extend through all the estimates; they include new population estimates for the 1970s made since the release of the 1980 Census of Population. One of the series, per capita personal income, is illustrated for the years 1976 and 1980 in the table and map on pages 15 and 16 of this issue. County-level coal-related series have been extended through 1980.

Quarterly disaggregated personal income series for the state are now available through the fourth quarter, 1981; quarterly coal shipments data have been extended through the same period. On a monthly basis, labor force, earnings, employment, and tax receipts are current through April 1982; coal-related series are current through March 1982.

Persons not familiar with the KEIS are encouraged to call the KEIS Manager (606-258-4626).

* * *

Dr. Charles W. Hultman, Chairman of the KCEA, recently participated in the University of Louisville's "Great Decisions 1982" program. His topic for the program, which was carried on radio and television, was "Global Inflation."

Dr. Don M. Soule (Acting) Executive Director of the KCEA, traveled to Henderson, Kentucky in May to participate in an Economic Development panel at a program sponsored by the Henderson Area Chamber of Commerce. He addressed the issue of the current and prospective economic development potential of the Kentucky economy. In late June, Dr. Soule will participate in the Economic Education summer workshop at Western Kentucky University, Bowling Green. He will give two talks, one on "Myths Concerning the Social Security Program," and another on "The Role of Price Controls in an Inflationary Economy."

Margaret O. Adams, KEIS Manager, and Dr. Soule addressed the Kentucky Industrial Development Council's recent seminar in Lexington. Ms. Adams described the general scope and utility of the KEIS and Dr. Soule spoke on the "Implications for Kentucky in the New Fiscal Federalism."

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Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Data Interpretation Problems in Monitoring the Recession's End

by Don M. Soule*

When a recession continues past the winter months, there is danger that the normal "seasonal" upturn in economic activity during spring and summer may be interpreted as signaling the recovery's beginning. Most economic data exhibit upward and downward movements within a year mainly because of seasonal changes in the weather. For example, monthly totals related to the employment situation (number of people employed, number of hours worked per week, and number of new claims for Unemployment Insurance) generally move unfavorably as cold weather sets in but improve again with the return of warm weather. These seasonal variations occur in a similar (although not identical) pattern each year. Superimposed upon these monthly fluctuations are cyclical variations--the longer term ups and downs of economic activity known as business cycles. Early notice of a business cycle turning point may be received from economic data that not only become available each month but also have a history of giving advance notice of changes that later occur generally in the economy. These "leading" economic indicator series must be interpreted carefully however, because both seasonal and cyclical changes may be included in the same data series.

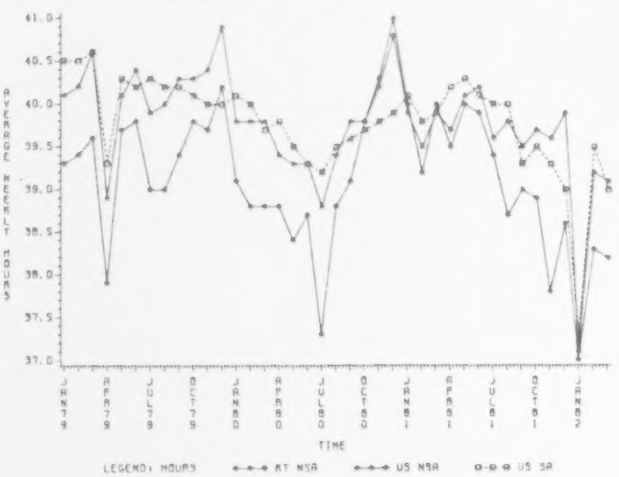
An unfortunate but inevitable characteristic of monthly economic series is that the latest published monthly data become available after a lag of several weeks.[1] Another unfortunate aspect of business cycle monitoring is that users often make economic judgments on the basis of monthly data that have not been adjusted to remove the effects of seasonal variation. This problem is the primary concern of the analysis that follows. Seasonally adjusted series are compared with unadjusted series. The purpose is to illustrate how a seasonal change can be mistaken for a cyclical change when unadjusted data are used, and to show how this danger can be reduced by using seasonally adjusted monthly data.[2]

Two monthly economic series generally considered "leading indicators" of cyclical change are the number of hours of the average workweek of manufacturing production workers, and the number of new claims for Unemployment Insurance (UI). A change in business conditions is indicated early by changes in the number of workers filing new claims for UI and in the number of hours of work per average worker per week. In this brief article each of these series is examined for both U.S. and Kentucky data, for the period January 1979 through March 1982. This period includes the 1980 "mini-recession" and partial recovery and the current 1981-82 recession that many forecasters predict will end during the middle months of 1982.

Average workweek. Figure 1 presents average workweek of manufacturing production workers for the period January 1979 to present. The two solid lines connecting the symbols representing U.S. and Kentucky data (an asterisk and a diamond, respectively) are for data *not* adjusted to remove seasonal variation; the dashed line is for U.S. data seasonally adjusted. The National Bureau of Economic Research has identified two recessions in this period. The first began in January 1980 and the second began in July 1981.[3] The two solid lines clearly show Kentucky as having suffered more than the nation in both recessions, with Kentucky's average workweek much below the U.S. values. Also shown is that underutilization of the Kentucky economy existed before the 1980 recession, as indicated by Kentucky's average workweek being below the U.S. amounts in all of 1979.

FIGURE 1

AVERAGE WEEKLY HOURS, U.S. AND KENTUCKY



Also shown in Figure 1 are differences between comparable monthly amounts for U.S. average workweek when measured by seasonally adjusted data (dashed line) and unadjusted data (solid line with asterisks). The unadjusted series fluctuated over a wider range and often moved in an opposite direction from the adjusted series. For example, the period July 1979 to December 1979 shows a gradual worsening in the adjusted U.S. series but a strong improvement in the unadjusted U.S. series. The average workweek series is a leading indicator in that it generally begins to decline before the main body of economic activity begins to decline. In this period, the adjusted series for average workweek declined for six or more months before the total economy began to decline. But the unadjusted series for average workweek increased each month from July to December 1979 and did not decline until January 1980, after which it held constant for two months. Other periods show similar differences between the levels and directions of change of the adjusted and unadjusted series. The obvious message is that monthly economic data, if not adjusted to remove the seasonal variation, are likely to be misleading if used to monitor turning points in business cycles.

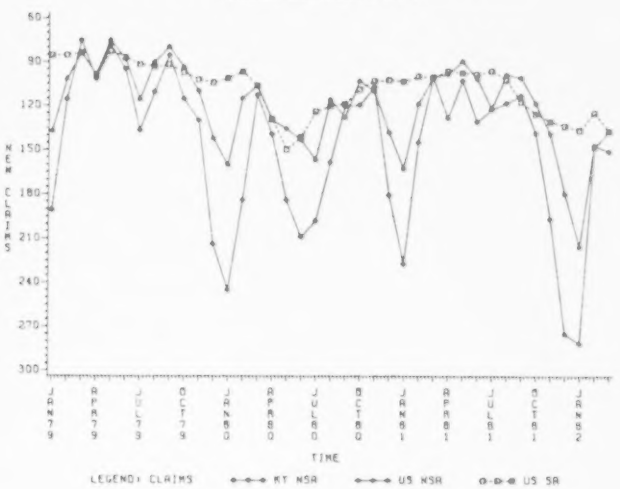
(continued on the following page)

Don M. Soule is (Acting) Executive Director of the KCEA.

(continued from the preceding page)

New claims for Unemployment Insurance. Figure 2 is similar to the previous figure but presents data for the number of new UI claims. A worsening of the business outlook brings reduction in number of workers employed and, therefore, an increase in claims for UI benefits. Compliance with the UI rules requires that a worker, upon becoming unemployed, promptly file a claim for UI benefits so that the various waiting periods may begin. Consequently, month-to-month changes in the number of new UI claims are an important signal of changes soon to occur in general economic conditions. Because a worsening of conditions is shown by a downward movement in most economic series, the new UI claims series is plotted according to an inverted scale (plotted upside down) so that an increase in number of claims is a downward movement on the graph and is consistent with other series which decline when conditions worsen. Further to aid in presenting the UI claims series, the data are converted to index numbers based on March 1981.

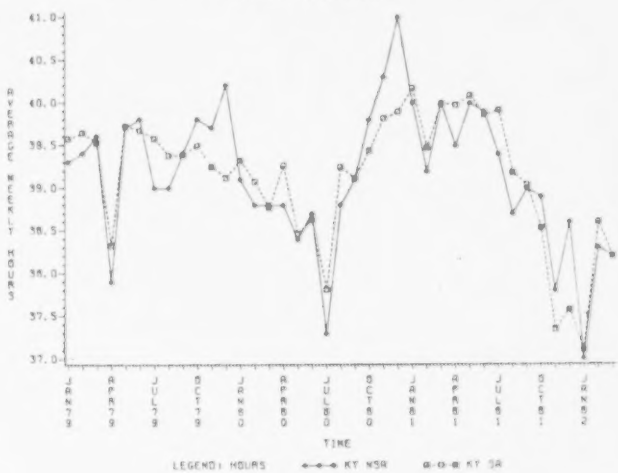
FIGURE 2
NEW UI CLAIMS, U.S. AND KENTUCKY
(INDEXED MARCH, 1981 = 100)



The messages in Figure 2 for new UI claims are substantially the same as previously presented for average workweek including the generally weaker employment situation in Kentucky than in the nation during most of the period. The two U.S. series show many cases of opposite directions of movement for unadjusted and adjusted data: for example, July to September 1979; December 1979 to March 1980; and November 1980 to March 1981. Of special interest is the strong worsening for the November 1980 to January 1981 period in the U.S. unadjusted series, while the U.S. adjusted series was essentially constant. Also of interest is the much larger worsening for the U.S. unadjusted series compared with the adjusted series, September 1981 to January 1982. The unadjusted series is shown to be a false indicator of business cycle turning points.

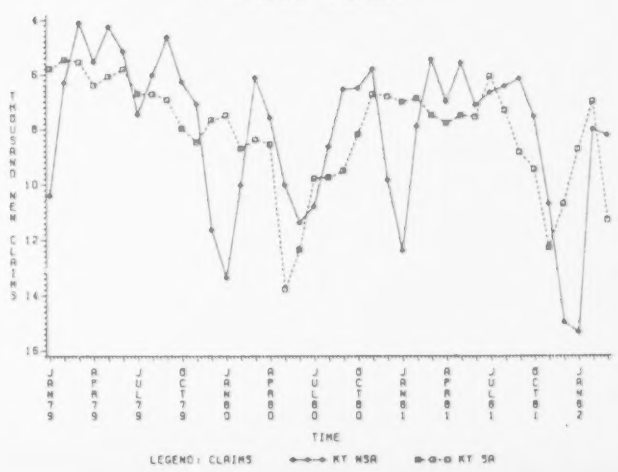
Seasonally adjusted data for Kentucky. Figures 3 and 4 present average workweek and the new UI claims for Kentucky, for the period January 1979 through March 1982. The original amounts (that is, not adjusted to remove seasonal variation) are shown as solid lines and the seasonally adjusted amounts are shown as dashed lines. Figure 3 for average workweek shows a major difference between the adjusted and unadjusted series during the second half of 1979. But for most of the period since January 1979, the unadjusted and adjusted data show generally similar movements, with the adjusted series differing mainly in having a smaller degree of month-to-month variation.

FIGURE 3
AVERAGE WEEKLY HOURS, KENTUCKY
UNADJUSTED AND ADJUSTED



For new UI claims, the picture in Figure 4 is changed considerably when adjustment is made to remove the effects of seasonal variation. First, the adjusted series gives a more

FIGURE 4
NEW UI CLAIMS, KENTUCKY
UNADJUSTED AND ADJUSTED



gloomy picture of the Kentucky employment situation. Second, the degree of variation is smaller for the adjusted series. Third, several periods are shown when the two series moved in opposite directions: August and September 1979; December 1979 and January 1980; January to March 1981; and December 1981 and January 1982. Particularly of interest in Figure 4 are changes relative to the beginning of the current recession–July 1981. The adjusted series shows worsening for August and September 1981 while the unadjusted series continued to show an improved economic situation.

Giving advance notice of a turn in the general economy is the main purpose of a "leading" indicator series. The comparisons of adjusted and unadjusted series in Figures 1-4 show that the unadjusted series do not serve this purpose and suggest that much improvement in monitoring the state's economy could be obtained by use of adjusted economic data. The method and facilities for making such adjustments are readily and inexpensively available.[4] Better business cycle forecasting would result.

Footnotes

[1]For example, the February 1982 issue of *Business Conditions Digest (BCD)*, the main source of indicator series, published by the U.S. Department of Commerce, included monthly data for January, was scheduled for release March 3, and was received at the KCEA office March 9. Some users are of course informed earlier, but readers of *BCD* get monthly data with a lag of approximately six weeks–end of January to first third of March.

[2]The method for seasonal adjustment is simply explained as follows. The total movement in an economic time series, from one period to another, is usually a composite of four kinds of changes–secular trend, cyclical swings, seasonal variations, and irregular random movements. Seasonal variations are more or less repetitive movements within a year that reflect primarily changes in weather conditions, social customs, and business practices. The most commonly used method for calculating the seasonal adjustment factors is the ratio-to-moving-average method. Basically, this method uses a 12-month moving average (simply an average of 12 monthly amounts moved up one month each time) to measure the trend-cycle component of the time series. The original monthly values are expressed as percentages of the corresponding monthly values of the moving average. For example, February values for new UI claims for several years might be 135.1, 135.3, 135.9, 137.7, 137.9, and 139.3 percent of the corresponding moving-average values. These "specific seasonal" factors, after being edited to remove irregular influences, are averaged to produce the seasonal adjustment factor for February, such as 136.8 percent. This factor is interpreted as meaning that February amounts for new UI claims typically are 136.8 percent of "what they would be" if there were no seasonal variation. Seasonal adjustment of a new February amount is accomplished by dividing by 136.8 and multiplying by 100 (for example, 41,500 new UI claims in February divided by 136.8 equals 303.3626 times 100 equals 30,336). It is estimated, therefore, that the February amount of new UI claims would have been 30,336 instead of 41,500 if not for the colder weather and other seasonal influences associated with that short winter month. Because a large number of new UI claims is a sign of poor economic conditions, the adjusted amount of 30,336 suggests a less unfavorable economic picture than does the unadjusted amount of 41,500. The actual seasonal adjustment process, although complicated, is performed efficiently by using computer programs developed by the U.S. Department of Labor and Bureau of the Census. This explanation is freely copied from Elizabeth W. Angle, *Keys for Business Forecasting* (Richmond, Va.: Federal Reserve Bank of Richmond, June 1975), pp. 24-25.

[3]"Current Recession Began in July," in *NBER Reporter* (National Bureau of Economic Research, Inc.), Winter 1981-82, pp. 23-24.

[4]The seasonal adjustment of Kentucky average weekly hours and new UI claims was done by the X-11 Seasonal Adjustment Program of the U.S. Bureau of the Census. This program has been integrated into the KEIS on the KECNET System. Some seasonally adjusted data series are stored in the KEIS monthly bank (MBANK) and can be made available to KEIS users. For further information, please contact the KEIS Manager (606-258-4626).

Acknowledgment: All figures were produced by Roy A. Sigafus, who accessed data series stored in the KEIS. The original source for the U.S. data is the Bureau of Labor Statistics, U.S. Department of Labor (drawn from CITIBASE). Kentucky data are from the Kentucky Department for Human Resources. KEIS program SASLINK and the SASGRAPH package were utilized.

NATIONAL ECONOMIC DATA THROUGH THE KEIS

In the above article reference is made to drawing some of the data used in the analysis from CITIBASE. CITIBASE is a machine-readable data bank of more than 4,500 time-series on the U.S. economy, 1947 to the present, maintained by the Economics Department of Citibank (New York). It was originally developed at the National Bureau of Economic Research to provide the most reliable information on the U.S. economy.

As a result of a 1981-82 Graduate School Incentive Program Grant to the Office for Research in the College of Business and Economics, the University of Kentucky now subscribes to CITIBASE, receiving a new copy of the data each quarter. Three new databanks, CITIBASE monthly, quarterly, and annual banks, have been added to the Kentucky Economic Information System (KEIS). Under the terms of the contract with Citibank, these data are directly accessible through the KEIS only by persons at the University of Kentucky. However, for a nominal quarterly subscription, other KECNET (Kentucky Educational Computing Network) institutions can have access to these data through the KEIS, after contracting with Citibank, under a "piggyback" agreement. Northern Kentucky University has made such an arrangement.

Persons in governmental agencies or in the private sector who wish to access the CITIBASE data through the KEIS need to make contractual arrangements for this service directly with Citibank. The advantage of doing this is that the data are easily accessible through the KEIS; the retrieval, analytical, and graphical capabilities of the KEIS can be utilized with these data. As illustrated above, the availability of these data allows for comparison of U.S. data with data on the Kentucky economy already maintained in the KEIS.

For further information please call the KEIS Manager (606-258-4626).

The 1982 Kentucky General Assembly In Retrospect

by Jim Peyton*

The presessional rhetoric of any session of the Kentucky General Assembly traditionally portrays the issues to be faced in superlative terms–"the gravest," "the most crucial," "the least amenable to acceptable solution." The rhetoric preceding the 1982 Session was no different–except perhaps, in this case, it contained more than a modicum of truth. There were serious issues to be dealt with.

First of all, there was the decennial ordeal of reapportionment. The realignment of election districts to comply substantially with the "one-man-one-vote" principle is not an issue which greatly excites or even attracts the attention of most citizens, however basic to their good interests. For legislators, though, it is a very serious business. To be called upon to give up a section of one's district where the voters are friendly and supportive and accept, perhaps, instead a new constituency whose preferences are unknown or, worse, hostile, is not conducive to good digestion and serenity. Reapportionment is by nature a divisive issue (no pun intended) within a legislature and usually leaves scars that are a long time fading.

A second concern of the membership was to continue the movement, begun more than a decade ago but gaining momentum in the previous session, toward a more independent legislature. Like reapportionment, legislative independence tends to command a restricted interest. Apart from the legislators themselves, the governor and his executive officers are concerned, since the question is essentially one of division of powers among the branches of government and wherever one branch gains, another must lose. Legislative independence requires that the legislature function cohesively, and the prospect of having to deal with reapportionment plus the presence of new leadership in the House of Representatives resulting from the untimely death of Speaker William G. Kenton, intensified the uncertainty that the body would hold together.

But the unrivaled chief issue confronting the General Assembly concerned the budget. The economy, to put the brightest face on it, was bad. Unemployment was inching steadily higher. Revenues were in many areas faltering, in others uncertain. In fact, two substantial reductions had already been necessary in the 1980-82 budget. There had been drastic cutbacks in federally-supported programs, such as health and social services and education, and threats of more to come. All these combined to make those services of state government which are essential–and those which for better or worse have come to be accepted as essential–seem impossible to maintain without some substantial broad-based tax increase. Yet most members were convinced that the majority of their constituents were strongly opposed to such an increase.

This was the climate under which, on Tuesday the 5th of January, 1982, the General Assembly of the Commonwealth of Kentucky convened.

And this is the outcome.

Despite all the possibilities for disaster, the legislature was able to solve the immensely complex puzzle of reapportionment and put together a package which, while it did not accomplish the impossible feat of pleasing everyone, drew the support of the great majority of the members.

As for independence, well, in most cases the members were able to function without undue pressure from the executive branch. In fact, some complained that at times they were unable to determine how the executive branch stood on certain pieces of legislation. In the course of the session the legislature enacted measures, over the governor's protest, that would permit more extensive legislative oversight of the executive during the interim between sessions, particularly in the areas of finance and reorganization. Both branches agreed that an early court test on the constitutionality of these acts would be desirable.

Coming up with an acceptable budget was not so quickly or smoothly accomplished. Work began very early in the session. Extensive open hearings were held with all the agencies to explore their needs. Time was provided for interest groups and individual interested citizens to express their concerns. Periodic conferences were held between the governor and representatives of the legislature. Finally, there emerged three versions of the budget–one originating in the Senate, one in the House of Representatives, and one from the Executive. Differences were resolved through conference, and the Budget Act for the 1982-84 biennium was adopted on the last day during which a measure could have been passed.

The budget, more than any other document, implies the priorities of the legislature. The primary expenditure categories for the new biennial budget are education, health and social services, and economic development. In the budget, one of the top priorities unquestionably was education. Increased funding over the period amounted to some 22 percent for elementary and secondary education and 21 percent for higher education. Among other things, the increased funding at the elementary and secondary level provides for:

- a reduction in class size from 27 to 25 pupils in grades 1 through 3;
- programs for the gifted and talented for more school districts;
- a revamping of the attendance calculations required by the state, resulting in increased allotments for school districts;
- an increase in the current operating expenses of school districts;

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- an increase in the power equalization funds which go toward spreading the yield of local tax efforts among wealthier and poorer school districts;
- more funds for school transportation to offset rising costs;
- a 12 percent raise for teachers over the biennium, plus the restoration of the two paid in-service days lost during the current year's budget cut.

In higher education the budget provides for:

- increased funding for student assistance grants and loans;
- increased funding for the institutions based upon the "Mission Model" formula, plus a guaranteed 6 percent increase for each institution;
- debt service for new construction at the Universities of Kentucky and Louisville, Northern Kentucky University, and four community colleges;
- additional funds for the teaching hospitals at the Universities of Kentucky and Louisville to offset operating deficits.

A considerable portion of the health and social services provided in the state have been financed and controlled by the federal government. Some others are federal-state shared, and some are the sole responsibility of the state. One of the major shared programs is Medicaid, to which the state contributes one-third of the cost. Medicaid costs have grown at a phenomenal rate in recent years, threatening to bankrupt both federal and state resources. The budget limits that growth in the coming biennium.

The budget also provides, among other things, for programs to serve the elderly in their homes, for the creation of spouse abuse centers, and for improved programs for the mentally ill. Although not directly related to the budget, other legislation related to health and social services. Stricter regulations of nursing homes were enacted, as was the requirement for treatment of persons acquitted of crimes on the grounds of insanity.

The budget offers continued support for the governor's economic development package, designed to encourage expansion of business and industry in the state. Among the specific provisions were:

- $75 million bond authorization for the Economic Development Program;
- $50 million bond authorization for the Development Loan Program administered by the Kentucky Development Finance Authority;
- a continuation of the Industrial Revenue Bond Program, although with tighter controls on the type of projects to be supported;
- $3.5 million to promote new industry and tourism;
- the establishment of "enterprise zones" with tax breaks and leases of state-owned buildings and land at nominal rates;
- tax credits for employers who hire those who have been unemployed for at least 60 days;
- the exemption of industrial machinery and certain commercial aircraft from the sales and use tax.

A sampling of other legislation passed during the 1982 Session, some budget related, some not, includes:

- supplemental pay for local police and firefighters;
- strengthening the special fund for workers' compensation;
- expanding the resources of the Kentucky Housing Corporation and extending its mandate for low-interest loans to middle, as well as low-income families;
- state primacy for enforcing federal mining and hazardous waste disposal regulations;
- easing the wage requirements on projects involving public money;
- an automobile title law;
- a procedure for handling customer complaints on new automobiles;
- restrictions on buying-clubs and health spas.

The legislature felt that, having passed the above measures, new revenue sources were necessary. Existing revenue sources would have been almost able to support the programs outlined, had it not been for the condition of the Road Fund. It gets its revenue primarily from the gasoline tax, a source considerably weakened in recent years. In fact, some of the revenue available to the General Fund has been used to bolster the Road Fund.

Several solutions to the revenue problems were discussed. These included increasing the cigarette tax, increasing the coal severance tax, and a business activities tax. The solutions adopted were:

- increases in alcoholic beverage taxes;
- a weight-distance tax on large trucks;
- overweight permits for trucks hauling natural resources;
- a surcharge on certain types of insurance coverage;
- a revision of the state investment rates.

The adoption of these revenue enhancing measures is projected, not only to bolster the Road Fund and to cover the items of the budget, but also to leave a reserve of nearly $20 million in the first year of the biennium and $48 million in the second. This reserve is deemed necessary, considering the uncertainty of the national and state economies and of federal support programs.

The legislators thus provided for what they consider a little more than just bare necessities. And, they managed to do so without increasing a broad-base tax. Rather, they followed the general principle that the greatest burden of the cost of state services should be borne by the user.

selected indicators OF ECONOMIC

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

UNITED STATES DATA

	Jan. 1982	Feb. 1982	Mar. 1982	Qtr. I 1982	% Chg. 81-IV 82-I	% Chg. 81-I 82-I
CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ALL ITEMS	282.50	283.40	283.10	283.00	0.82	7.63
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), FOOD AND BEVER	273.60	275.80	275.60	275.00	1.76	4.42
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), HOUSING	306.10	307.30	306.70	306.70	0.79	9.20
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), APPAR & UPKEEP	187.30	188.00	191.10	188.80	-1.20	3.32
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), TRANSPORTATION	289.90	288.00	285.10	287.67	-0.36	6.66
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), MEDICAL	313.40	316.20	318.80	316.13	2.73	12.90
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ENTERTAINMENT	229.20	231.20	232.80	231.07	2.00	6.76
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), OTHER	248.40	250.30	252.20	250.30	1.78	10.05
CONSUMER PRICE INDEX (CPI-U), SPECIAL INDEX: ENERGY	416.40	413.00	406.10	411.83	-0.65	3.64
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL FINISHED GOODS	277.40	277.40	276.90	277.23	0.90	5.32
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	277.70	278.10	277.20	277.67	0.86	4.75
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	311.30	311.30	310.90	311.17	0.59	4.13
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	290.80	291.30	290.80	290.97	0.40	3.72
PRODUCER PRICE INDEX, CRUDE MATERIALS	318.20	321.50	319.90	319.87	0.86	-3.92
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	242.50	248.30	247.90	246.23	2.93	-7.65
PRODUCER PRIC. INDEX, BITUM. COAL, INDUSTRIAL,SPOT(1967=100)	441.80	433.00	445.70	440.17	1.06	9.97
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL,CONTRACT(JUNE76=100)	147.40	148.60	147.40	147.80	2.69	8.62
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)						
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	21.14	21.26	22.52	21.64	4.25	19.61
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	47.46	47.78	50.87	48.70	3.64	20.33
AVG PRICE FOR ELECTRICITY, PER 500 KWH	36.01	36.09	36.74	36.28	3.90	13.22
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.25	1.25	1.21	1.24	-0.11	0.27
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.34	1.32	1.27	1.31	-3.08	-2.07
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.28	1.26	1.21	1.25	-3.55	-4.09
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.36	1.33	1.28	1.33	-3.14	-2.95
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.46	1.44	1.41	1.43	-1.78	2.48
LABOR FORCE (SEASONALLY ADJUSTED)						
LABOR FORCE, CIVILIAN (MILLIONS)	108.88	109.16	109.35	109.13	-0.02	0.95
EMPLOYMENT, TOTAL (MILLIONS)	99.58	99.59	99.49	99.55	-0.49	-0.57
EMPLOYMENT, AGRICULTURE	3.41	3.37	3.35	3.38	1.75	-0.01
EMPLOYMENT, NONAGRICULTURAL INDUSTRIES	96.17	96.22	96.14	96.18	-0.56	-0.59
UNEMPLOYMENT RATE, TOTAL	8.50	8.80	9.00	8.77	4.78	19.00
UNEMPLOYMENT RATE, BLACKS & OTHER RACIAL MINORITIES	15.10	15.90	16.60	15.87	3.25	20.20
OTHER SELECTED NATIONAL INDICATORS:						
U.S. GROSS NATIONAL PRODUCT ($ $) (% CHG AT ANNUAL RATE)	NA	NA	NA	2991.60	-0.89	4.86
U.S. REAL GROSS NATIONAL PRODUCT ($ 72$) (% CHG AT ANNUAL RATE)	NA	NA	NA	1482.20	-4.25	-2.26
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED ($ $)	2498.10	2513.20	2522.50	2511.30	4.05	8.26
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	125.30	124.80	124.20	124.77	-2.42	-7.63
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	140.70	142.70	141.50	141.63	-3.17	-6.68
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	12.41	13.78	12.49	12.89	7.24	-10.26
PRIVATE HOUSING UNITS AUTH. 16000 PERMIT-ISSUING PLACES (SAAR THOU)	832.00	795.00	858.00	2485.00	53.09	-29.64
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH ($ $)	330.13	327.43	327.13	328.23	-0.64	5.74

CTIVITY

KENTUCKY DATA

	Jan. 1982	Feb. 1982	Mar. 1982	Qtr. I 1982	% Chg. 81-IV 82-I	% Ch 81-I 82-I
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1611.00	1595.70	1586.20	1597.63	-4.68	-2.6
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1426.20	1412.00	1416.60	1418.27	-7.60	-4.6
EMPLOYMENT, AGRICULTURAL	44.60	47.30	52.00	47.97	31.70	1.3
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1381.60	1364.70	1364.60	1370.30	-6.45	-4.7
UNEMPLOYMENT RATE	11.50	11.50	10.70	11.23	33.33	19.7
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1174.60	1166.20	1164.70	1168.50	-2.73	-1.6
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	48.50	48.30	48.30	48.37	-0.68	1.8
EMPLOYMENT, CONTRACT CONSTRUCTION	42.40	41.40	43.30	42.37	-17.79	-11.4
EMPLOYMENT, TOTAL MANUFACTURING	263.60	260.40	255.50	259.83	-1.81	-4.3
EMPLOYMENT, MANUFACTURING, DURABLE	144.90	143.70	140.80	143.13	-0.79	5.6
EMPLOYMENT, MANUFACTURING, NON-DURABLE	118.70	116.70	114.70	116.70	-3.05	-2.6
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	65.60	65.50	65.70	65.60	-2.77	-1.4
EMPLOYMENT, WHOLESALE & RETAIL TRADE	256.10	248.90	249.10	251.37	-4.39	-1.5
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	51.10	51.60	51.50	51.40	0.13	-1.6
EMPLOYMENT, SERVICES (SIC 70-80)	214.20	214.10	214.60	214.30	-1.26	1.5
EMPLOYMENT, CIVILIAN GOVERNMENT	228.40	231.10	231.60	230.37	-0.72	-0.1
EMPLOYMENT, STATE & LOCAL GOVERNMENT	189.50	192.10	192.40	191.33	-0.67	-0.3
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	37.00	38.30	38.20	37.83	-1.56	-4.7
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	36.60	38.10	38.00	37.57	-1.23	-6.5
AVG WEEKLY HOURS, PROD WORKERS, NON DURABLE MANUFACTURING	37.50	38.40	38.50	38.13	-1.97	-2.4
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	8.32	8.36	8.34	8.34	3.82	8.8
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	9.02	9.12	9.01	9.05	3.11	9.4
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	7.48	7.42	7.52	7.47	4.23	9.3
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	307.84	320.19	318.59	315.54	2.20	3.6
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	330.13	347.47	342.38	339.99	1.85	2.1
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	280.50	284.93	289.52	284.98	2.18	6.6
MINING (MILLIONS OF TONS, MILLIONS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	8.57	8.99	10.88	28.44	-14.13	3.1
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	3.26	3.44	4.16	10.85	-14.76	1.5
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	13.39	12.95	12.78	13.04	-1.26	-2.1
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	700.30	659.16	622.50	660.65	-4.10	40.6
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	52.30	50.90	49.10	50.77	-2.68	39.8
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	22.02	9.95	26.32	58.29	*	15.7
CONSTRUCTION (MILLIONS OF $, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	49.80	71.40	177.10	298.30	-10.22	-27.4
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1 FAMILY RESID. UNITS	118.00	203.00	336.00	657.00	6.66	-38.14
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1 FAMILY RESID. UNITS	4.61	8.79	15.21	28.61	2.92	-39.12
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	211.00	297.00	792.00	1300.00	-8.77	-27.1
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL RESID. UNITS, TOTAL	5.85	10.26	26.78	42.89	-7.23	-31.2
RETAIL SALES (MIL $, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	74.16	49.72	64.02	187.90	*	4.4
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	6.03	5.94	8.01	19.98	*	2.89
FINANCE AND INSURANCE (MILLIONS OF DOLLARS)						
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	3.14	15.13	23.03	41.30	-37.98	-50.64
SALES OF ORDINARY LIFE INSURANCE	422.24	461.15	571.56	1454.96	-0.06	18.66
SELECTED STATE GOVERNMENT RECEIPTS (MIL $)						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL	209.98	161.78	131.62	503.38	*	-0.66
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL	70.80	46.69	46.44	163.94	*	4.82
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL	54.39	80.66	28.73	143.78	*	6.67
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION	4.63	4.41	8.62	17.66	*	7.39
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE	26.62	17.59	67.90	112.11	*	34.90
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS TAXES, NORMAL	16.60	3.96	24.41	44.97	*	10.95
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX	6.49	6.37	9.80	22.62	*	3.55

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY), VALUE OF CONSTRUCTION CONTRACTS;
LIFE INSURANCE MARKETING & RESEARCH ASSOCIATION, INC., SALES OF ORDINARY LIFE INSURANCE;
R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NOTE: THE DATA ON PERMIT-AUTHORIZED CONSTRUCTION COME FROM THE BUREAU OF THE CENSUS, U.S. DEPARTMENT OF COMMERCE AND REPRESENT THE KENTUCKY PORTION OF THE NATIONAL SURVEY OF 16,000 PERMIT-ISSUING PLACES.

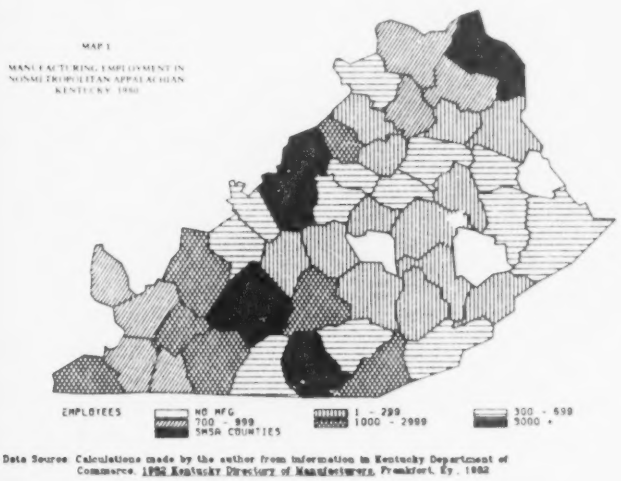
* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Appalachian Entrepreneurship and Industrial Development

by Douglas P. Dotterweich*

In the past two decades nonmetropolitan areas have seen their share of manufacturing employment increase relative to urban areas. In fact, between 1962 and 1978, 56 percent of the total United States increase in manufacturing jobs occurred in rural areas.[1] The explanation most often given for growth in rural manufacturing activity is the filter-down or product-cycle model.[2] This theory states that large metropolitan centers are the locations where the vast majority of innovation and the early stages of product development occur. As maturity comes to the industry, techniques of mass production and standardization become more commonplace and branch locations in rural areas are developed to take advantage of labor cost savings. The filter-down explanation posits that branch plants are the source of employment growth in rural areas and supports the contention that the level and type of manufacturing activity in these areas is largely dependent on external forces.

The emphasis often placed by industrial development personnel on the recruitment of branch plants implies that the filter-down model is equally valid for all areas. This article will consider the importance of developing indigenous sources of employment as part of an industrial development strategy for Appalachian Kentucky. Data provided by a recent study as well as some updating and manipulations by the author will be used to support recommendations made in this policy-oriented article.[3] The study region will include the counties of Kentucky defined by the Appalachian Regional Commission as Appalachian minus the three counties which are part of an SMSA (i.e., Boyd, Clark, and Greenup).



Data Source: Calculations made by the author from information in Kentucky Department of Commerce, 1982 Kentucky Directory of Manufacturers, Frankfort, Ky., 1982

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In 1980, more than 37,000 persons were employed in manufacturing in Appalachian Kentucky. The distribution of employment by county shows three counties without any manufacturing (Map 1). Manufacturing employment in the region is highly concentrated with three counties along interstate highway I-75 having about 30 percent of Appalachia's manufacturing employment.

Branch operations accounted for slightly more than 70 percent of the region's employment in 1980 (Table 1). The relative share of manufacturing employment in the region made up by branch operations has increased since 1968. Table 1 shows that almost 66 percent of Appalachia's manufacturing was due to branches in 1968 compared to almost 71 percent in 1980. This increasing relative share for branch operations over time is consistent with statewide nonmetropolitan trends as well as national trends.

TABLE 1

MANUFACTURING EMPLOYMENT IN RURAL APPALACHIAN KENTUCKY: 1968, 1978, 1980

Year	Branch	Indigenous	Total
1968	17,806	9,209	27,015
1978	25,851	10,692	36,543
1980	26,190	10,832	37,022

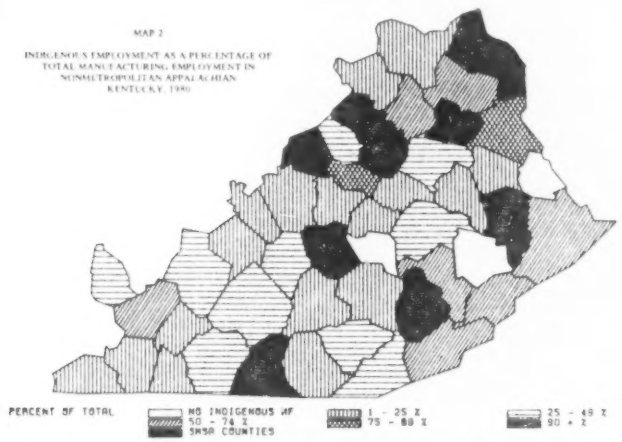
SOURCE: Kentucky Department of Commerce, *Directory of Manufacturers*, Frankfort, Ky., 1970, 1980 and 1982 editions.

Between 1968 and 1978, Appalachia gained 9,528 manufacturing employees. This was an increase of 35 percent which compares with a 20 percent increase in the rest of the nonmetropolitan counties of Kentucky. The short-term trend has been quite different, however. The nonmetropolitan manufacturing counties of Appalachia gained only 479 manufacturing employees between 1978 and 1980. This amounts to a growth rate of only 1.3 percent per year, noncompounded, versus a rate of 3.5 percent per year during the preceding ten years. This slowed growth rate is reflective of national trends, with manufacturing employment actually declining in many parts of the country.

One other very interesting observation to be made from Table 1 is that the rate of growth in manufacturing employment for branch and indigenous operations in rural Appalachia has been exactly the same since 1978. Both sources of manufacturing employment experienced modest growth; 339 in branch and 140 in indigenous manufacturing. Thus, the long-term trend that shows indigenous employment to be declining as a source of manufacturing employment has not continued during the recent period.

The spatial distribution of indigenous employment by county contrasts sharply with the pattern for total manufacturing employment (Map 2). It is interesting to note that the

three Appalachian counties with no indigenous manufacturing have no branch manufacturing. In 1978, thirteen of the forty-three counties of Appalachian Kentucky (30 percent) had indigenous employment as the dominant source of manufacturing compared with only five of fifty-three (9 percent) for the other nonmetropolitan counties of the state.[4] Indigenous employment has become dominant in three more of the Appalachian counties since that time. An additional ten Appalachian counties relied on indigenous employment for at least 25 percent of their total manufacturing. Thus, twenty-six of the forty-three Appalachian counties which possess manufacturing employees (60 percent) have gained at least one-fourth of their manufacturing employment as a result of indigenous activity.


MAP 2
INDIGENOUS EMPLOYMENT AS A PERCENTAGE OF TOTAL MANUFACTURING EMPLOYMENT IN NONMETROPOLITAN APPALACHIAN KENTUCKY, 1980
PERCENT OF TOTAL
NO INDIGENOUS MF
50 - 74 %
SMSA COUNTIES
1 - 25 %
75 - 89 %
25 - 49 %
90 + %

Data Source: Calculations made by the author from information in Kentucky Department of Commerce, 1982 Kentucky Directory of Manufacturers, Frankfort, Ky., 1982

The counties which have relied most heavily on indigenous employment as their primary source of manufacturing tend to be concentrated in the northeast counties of the state, as well as the extreme eastern coal producing counties. Branch manufacturing is most dominant in the counties in the southwestern portion of Appalachian Kentucky.

The composite picture that emerges from these findings suggests some directives for industrial development in Appalachia. In recent years, there has been a recognition of the importance of diversifying the economy of Appalachian Kentucky to include significant levels of manufacturing as a means of improving the region's long-term economic future. Expansion of indigenous businesses, as well as the recruitment of new industrial firms to the area, have both been suggested as means of increasing manufacturing employment.[5] Development efforts that have sought to follow both of these very broad recommendations have met with mixed success. How might the specific findings of this study be utilized to improve the effectiveness of local economic development efforts?

Branch plant activity was *not* found to be equally important as a source of manufacturing throughout all the nonmetropolitan counties of Kentucky. The following comments attempt to suggest two reasons why indigenous manufacturing activity has become more dominant in Appalachian Kentucky and to suggest a policy orientation that may follow from these developments.

First of all, one reason for the relatively poor performance of the Appalachian counties with respect to attracting branch manufacturing may be related to the negative stereotype of Appalachia as a place to live and do business. The frequent coal strikes and high wage levels paid by mining activities are likely to be reasons for a negative image by outsiders. The Cromley and Leinbach study would seem to support this contention with its observation that the contribution of branch employment is weakest in the strong mining counties. A negative perception of the region in the minds of many business managers from other areas, while not a valid reflection of reality, probably remains a fact that must be confronted. A public relations effort to draw attention to the positive changes that have occurred in Appalachia in recent years would help.

It is evident that an entrepreneurial spirit exists in Appalachia. Urban areas have traditionally been viewed as the sources of entrepreneurial spirit, while rural areas such as Appalachian Kentucky have been viewed as having very few local entrepreneurs. Yet lack of entrepreneurship in Appalachian Kentucky does not appear well supported by the results of research found in this article. Thirty percent of Appalachia's manufacturing is indigenous. This percentage was the same in 1978, at which time it compared with indigenous employment of only 20 percent for western Kentucky.[6] Thus in comparison with rural parts of western Kentucky, Appalachian Kentucky does appear to be developing significant amounts of manufacturing employment from within the region.

All of this leads to the suggestion that business development efforts and resources be based, at least in part, upon a region's relative and historic levels of branch and indigenous activity. Business development efforts often seem to employ a scattergun approach to try to attract branch manufacturing plants, while simultaneously developing local entrepreneurial skills to create new local business concerns. Such efforts are likely to be more effective if the data reported here and in the Cromley and Leinbach article are examined by development policy officials. For example, five Appalachian Kentucky counties have *no* branch manufacturing but do have indigenously-created manufacturing activity. For these five counties, it seems clear that if there have been any attempts to attract branch employment, they have not been successful. Other things being equal, there is probably no precedent for suggesting that future development efforts aimed at attracting branch plants would meet with any better success.

In these areas, business development efforts should probably be concentrated on indigenous activity. In other words, seeking branch employment may have been the logical approach to business development in Appalachian Kentucky in the 1960s and 1970s. However, the recent successes in the area of indigenous activities indicate that to accomplish expansion of the manufacturing sector, and growth of the general economy of the region, more development resources ought to be focused on identifying and channeling the efforts of potential local Appalachian entrepreneurs. One example of a way to do this is to establish Small Business Development Centers in the area.[7] At a minimum, it would seem that the efforts to establish small businesses should be concentrated in counties where the level of indigenous employment, compared to total employment, is the greatest.

Overall, the data reported here and in the Cromley-Leinbach article suggest that a greater opportunity to impact

industrial development in general but specifically regarding new, locally-owned businesses, may exist in Appalachian Kentucky than in western Kentucky. Nearly 30 percent of the Appalachian manufacturing employment is from indigenous activity compared to less than 20 percent for nonmetropolitan western Kentucky. Generally, decisions regarding a branch plant's production, location, number of persons employed, and so forth are made at corporate headquarters many miles away. The local community has little, if any, input into the decision process. On the other hand, a local entrepreneur is usually already in the region either because he or she wants to be or because of family or other traditional ties. In these circumstances, the support of the community and reciprocally, of the entrepreneur for the community, is likely to be a prime consideration in the decisions made by the firm. An industry with roots in the region is less likely to pick up and move at the first sign of labor problems or other difficulties. Often, local potential entrepreneurs seek guidance regarding the type of businesses to start. This is where support from development professionals can aid tremendously in helping to direct these persons into businesses that have a good probability of success and that are likely to benefit the local community in terms of level, stability, and distribution of employment and income.

To summarize: economic development efforts in nonmetropolitan areas have traditionally focused primarily on the recruitment of branch plants of firms presently operating outside the region. Such an approach has assumed that the level and type of manufacturing activity in rural areas is primarily dependent on external forces. Yet the data for manufacturing activity in Appalachian Kentucky suggest that this is not an appropriate assumption for all counties of this region. Therefore, the following seem to be reasonable policy suggestions.

1. A public relations campaign concerning the cultural heritage and many positive changes that have taken place in recent years in Appalachia could improve the region's ability to attract branch manufacturing.

2. The spirit of entrepreneurship which is present in Appalachian Kentucky should be recognized and channeled in beneficial directions.

3. The focus of local industrial development efforts should be determined by past and expected future success. However, this suggestion should be tempered where specific information exists to suggest that future efforts to attract branch plants are likely to be more successful than past efforts.

4. The greater percentage of manufacturing employment currently derived from indigenous firms in Appalachian Kentucky implies a greater opportunity for influencing the development of local manufacturing in eastern Kentucky than in western Kentucky. Since the long-term trend shows the percentage of manufacturing employment generated locally has declined for nonmetropolitan areas of Kentucky as a whole, this opportunity will have to be seized quickly. Identification of local entrepreneurs and local business opportunities in targeted subareas within Appalachia is an important first step toward strengthening the Appalachian economy.

Footnotes

[1]Claude Haren and Ronald Holling, "Industrial Development in Non-metropolitan America: A Locational Perspective," in *Non-metropolitan Industrialization*, eds. Richard Lonsdale and H. Selyer (New York: Halsted, 1979), p. 17.

[2]Wilbur Thompson, "The Economic Base of Urban Problems," in *Contemporary Economic Issues*, ed. Neil W. Chamberlain (Homewood, Illinois: Irwin, Inc., 1973), pp. 8-9.

[3]Robert G. Cromley and Thomas R. Leinbach, "Patterns of Manufacturing in Nonmetropolitan Kentucky, 1968-78," *Kentucky Economy: Review & Perspective*, Vol. 5, No. 4 (December 1981), pp. 10-13.

[4]Cromley and Leinbach, p. 11.

[5]Judith Maher, "East Kentuckians Set Development Priorities," *Appalachia*, Vol. 11, No. 6 (June-July 1978), pp. 32, 37.

[6]Cromley and Leinbach, p. 11.

[7]The University of Kentucky has planned a new Small Business Development Center for Morehead State University, Morehead, Kentucky for October 1982.

Energy Data in the KEIS

by Frances E. Ross*

Over the past year, substantial effort has been devoted to updating and expanding the time-series of the Kentucky Economic Information System (KEIS) related to energy information. Approximately 1,000 series have been updated or added in the annual data bank (ABANK). These series cover such topics as coal production, shipments and employment; electric energy capacity, generation, and consumption; degree days for heating and cooling; natural gas reserves, production, distribution and consumption; and oil production and sales. Where these data are published quarterly or monthly, comparable series have been added to the quarterly bank (QBANK) and the monthly bank (MBANK).

The data are primarily taken from U.S. Department of Energy (DOE) publications. Prior to 1976, federal statistical reporting of mines and minerals information was the responsibility of the Bureau of Mines, within the Department of Interior. When the Department of Energy was created, the responsibility for reporting on fuel resources was transferred to the Energy Information Administration (EIA) in DOE. Officials there attempted to keep the time-series data consistent with historical reports. However, vast improvements were made in revising the survey forms and procedures. Certain voluntary forms became mandatory, and federal statisticians began to work more closely with state agencies to verify production figures. Nationally focused attention on energy consumption issues has enabled the EIA to get widespread

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cooperation in its reporting requirements. Their publications are concise, thorough and timely; they include national, state, and some substate level statistics.

Supplementing these series are some obtained from Kentucky state government agencies and from private industry sources. The Kentucky Department of Mines and Minerals publishes it own annual report on coal production, number of mines, and mining employment. The Department of Revenue reports on tax receipts and taxable amounts of coal, oil, and gas production. For the electric utility industry, the Edison Electric Institute publishes a comprehensive *Statistical Yearbook* on electricity generation, sales, customers, and revenues. The American Gas Association (AGA) produces a comparable annual, *Gas Facts*, for the gas utility industry. Additionally, there are a few series from the American Petroleum Institute and the National Oceanic and Atmospheric Administration.

Coal

Presently, there are approximately 600 time-series dating from 1951 to the most recently released period, relating to the Kentucky coal industry. Production figures for the state and for the eastern and western coalfields are available monthly, quarterly, and annually. In the county bank (CBANK), there are five coal-related series for each county that produces coal. Coal shipments figures are obtained quarterly from the U.S. DOE/EIA publication *Coal Distribution*. These data are disaggregated primarily by coal district. District 8 includes eastern Kentucky as well as North Carolina and parts of Tennessee, Virginia, and West Virginia; District 9 is comprised of western Kentucky coalfields. The following categories of shipments data are available quarterly and annually (QBANK and ABANK):

- from District 8 and from District 9 to various types of consumers, both foreign and domestic;
- by method of transport, from District 8 and from District 9;
- into Kentucky, by type of user, and method of transport;
- to Kentucky, from Districts 8 and 9.

The ABANK has many more detailed disaggregations for coal information. Production output is reported for underground and surface mines, for coal sold and not sold on the open market, and for the eastern and western coalfields. There are series showing the number of mines, the average number of men working daily, the average number of days worked, and tons mined per man per day—all disaggregated by type of mine and location of coalfield. Additionally, there are a few special series showing average sulfur content of coal delivered to and from Kentucky.

Detailed production and employment figures for the five Kentucky coal districts (Harlan, Hazard, Martin, Pikeville, and western Kentucky) are also included in the KEIS. These, along with the number of mines per district, are taken from the *Kentucky Department of Mines and Minerals Annual Report*.

Other statistics reflect usage and cost of coal to the electric utility industry of Kentucky. Examples of data series are:

- stocks of coal held by electric utilities;
- consumption of coal by electric utilities;
- electricity generation from coal-fired plants;
- average cost and quantity of coal obtained by spot and contract purchases;
- average cost and quantity of underground and surface-mined coal.

The coal series related to the electric utility industry are available monthly, quarterly, and annually. The sources for these data are the EIA publications *Electric Power Monthly* and *Cost and Quality of Fuels for Electric Utility Plants*.

Electricity

In addition to the examples cited above, this segment of the data bank includes electric energy capacity, generation, and consumption of each fuel broken out by type of utility plant. Average cost and quantities of each fuel (coal, oil, and gas) are given for spot and contract purchases. Sales are reported by class of customer—residential, commercial, industrial, etc.

The cost and quantity of electric energy purchased, by each 2-digit SIC industry, have been included from the Annual Survey of Manufactures' *Fuels and Electric Energy Consumed*, published by the Bureau of the Census (U.S. Department of Commerce). Finally, Edison Electric Institute provides similar series on electricity generating capacity, generation, and sales plus additional series on number of ultimate customers, and revenues by type of customer.

Degree days, heating and cooling, are provided for Lexington and for Kentucky. The data are obtained monthly, quarterly, and annually (calendar year and heating season) from the National Oceanic and Atmospheric Administration.

Natural Gas

The American Gas Association and the U.S. Department of Energy both provide statistics on the estimated recoverable reserves of natural gas, as well as production and consumption of natural gas. The series from AGA also include:

- underground storage of natural gas;
- volume of gas in storage;
- ultimate capacity of existing reservoirs;
- new gas and oil well completions;
- miles of pipeline installed, and total;
- average number of customers, by type;
- sales and revenues, by type of customer;
- average price per million Btu.

Oil

Crude oil production, average value per barrel, and value of total output are all obtained from the Energy Information Administration. Sales of petroleum middle distillates, published by the American Petroleum Institute, are also available monthly, quarterly, and annually. The oil series are not very numerous, since Kentucky is not a primary oil-producing state. The data are generally interspersed with the electricity series and the tax receipts segment of the KEIS.

The following table outlines the groups of energy series as they are stored in the ABANK of the KEIS. Cross reference numbers for the location of these series in the QBANK and MBANK, when appropriate, are also indicated. For further information about accessing these data, please contact the author (606-258-4626).

KEIS ENERGY SERIES

ABANK Series No.	Description	QBANK Cross References	MBANK Cross References
1603, 1608, 1613, 1622, 1625	Value total output; coal, oil, gas		
1640-1665	Average value per ton, coal		
1668	Average value per million cubic feet, natural gas		
1671	Average value per barrel, crude petroleum		
1684-1708	Physical output, coal	600-602	600-602
1715	Physical output, natural gas		
1718	Physical output, crude petroleum	603	607
1730-1841	Shipments of coal	610-703	
1850-1946	No. of mines, average no. men working daily, average no. of days worked, tons per man per day		
1950-2075	Coal production--KDMM		
2080-2205	Coal mining employment--KDMM		
2206-2271	No. of mines--KDMM		
2300-2325	Electricity--installed capacity, generation & consumption of fuels	754-766	654-666
2326-2329	Stocks of coal, oil held by electric utilities	750-753	650-653
2330-2351	Receipts, average cost & quantity of fuels received by electric utilities	700-792	670-692
2353-2363	Coal originating in Ky. to electric utilities; average sulfur content		
2364-2368	Electric energy sales, by type of customer	793-797	693-697
2370-2415	Quantity and cost of electric energy purchased, by 2-digit SIC Industry		
2420-2485	Electricity generation, sales, number of customers, and revenues reported by EEI	710-749	610-649
2501-2506	Degree days, heating and cooling		
2507-2517	Natural gas--reserves		
2518-2535	Natural gas--production & consumption		
2538-2555	Natural gas--storage, underground capacity of reservoirs		
2556-2561	No. of wells		
2562-2571	Miles of pipeline		
2572-2607	Natural gas consumption, no. of customers, sales, revenues & average prices by AGA		
2610-2613	Petroleum, sales of middle distillates	604-607	603-606
777, 826, 887, 936	Tax receipts, coal severance	451, 467, 516	362, 378, 427
783, 893	Tax receipts, oil production	473	384
786, 896	Tax receipts, mineral and gas severance	476	387

Kentucky County-Level Per Capita Personal Income 1976-1980

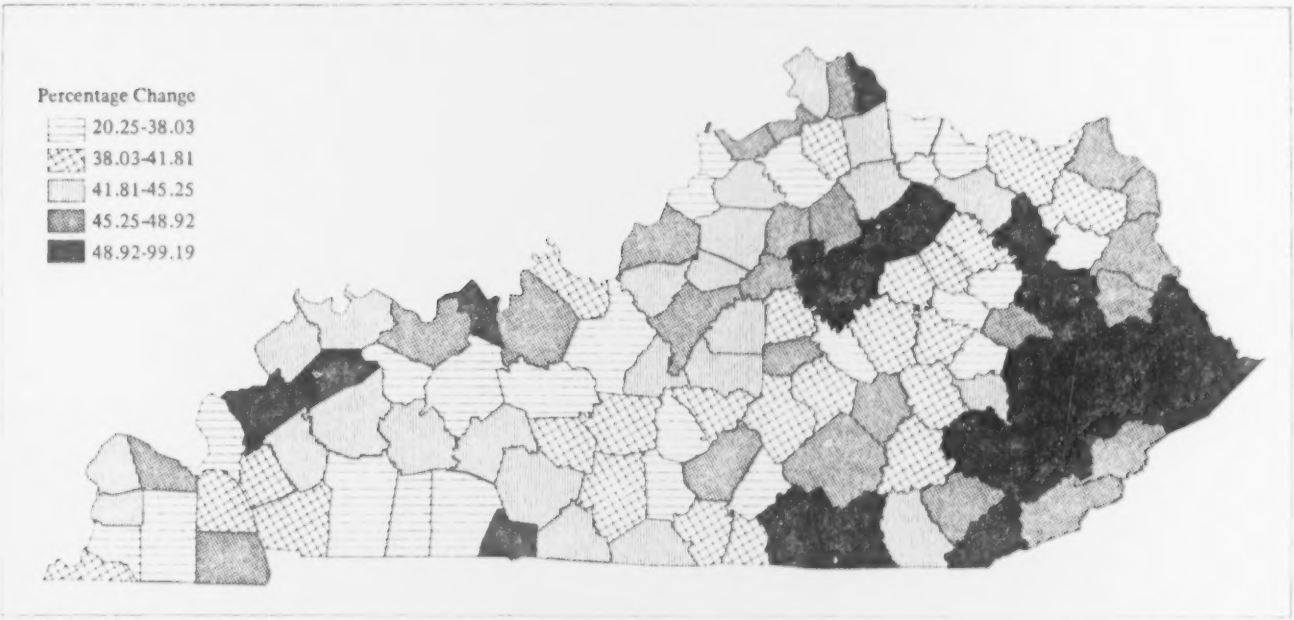
The following table gives the values for Kentucky county-level Per Capita Personal Income in 1976 and 1980, and shows the percentage change in these values over this period. Comparable information is graphically represented on the map on page 16, where the percentage change in Per Capita Personal Income for each county is shaded according to the quintile appropriate to it.

The source agency for these data is the Bureau of Economic Analysis (BEA), U.S. Department of Commerce. In April 1982, BEA released revised estimates of personal income by source for all counties, SMSAs, and states for the period 1969-80. The revised data for Kentucky counties, Area Development Districts, Appalachian Kentucky, and Kentucky, as well as for the U.S., are now available in the County Bank (CBANK) of the Kentucky Economic Information System (KEIS). The table below was prepared using KEIS program ADD3. For further information, please contact the KEIS Manager (606-258-4626).

	1976	1980	PERCENT CHANGE 1976-80
ADAIR	3451.0	5017.0	45.38
ALLEN	4446.0	6309.0	41.90
ANDERSON	5336.0	7791.0	46.01
BALLARD	4896.0	6966.0	42.28
BARREN	4787.0	6769.0	41.40
BATH	4186.0	5805.0	38.68
BELL	4174.0	6555.0	57.04
BOONE	5781.0	8376.0	44.89
BOURBON	5302.0	10508.0	98.19
BOYD	6419.0	9474.0	47.59
BOYLE	5314.0	7738.0	45.62
BRACKEN	4387.0	5948.0	35.58
BREATHITT	3079.0	5228.0	69.80
BRECKENRIDGE	3932.0	5818.0	47.97
BULLITT	4486.0	6375.0	42.11
BUTLER	3658.0	5292.0	44.67
CALDWELL	5377.0	7662.0	42.50
CALLOWAY	4559.0	6770.0	48.50
CAMPBELL	5951.0	8994.0	51.13
CARLISLE	4618.0	6604.0	43.01
CARROLL	5047.0	7364.0	45.91
CARTER	3409.0	4729.0	38.72
CASEY	3044.0	4305.0	41.43
CHRISTIAN	5434.0	6829.0	25.67
CLARK	5869.0	8144.0	38.76
CLAY	3208.0	5181.0	61.50
CLINTON	2832.0	3962.0	39.90
CRITTENDEN	4812.0	7188.0	49.38
CUMBERLAND	3527.0	4928.0	39.72
DAVIESS	6028.0	8807.0	46.10
EDMONSON	3221.0	4520.0	40.33
ELLIOTT	3672.0	4590.0	25.00
ESTILL	4238.0	5936.0	40.07
FAYETTE	6219.0	9547.0	53.51
FLEMING	3903.0	5539.0	41.92
FLOYD	3991.0	6313.0	58.18
FRANKLIN	6463.0	9523.0	47.35
FULTON	5114.0	7070.0	38.25
GRATLIN	4077.0	6038.0	48.10
GARRARD	5113.0	6881.0	34.58
GRANT	4942.0	6996.0	41.56
GRAVES	5317.0	7246.0	36.28
GRAYSON	4086.0	5516.0	35.00
GREEN	4276.0	5865.0	37.16
GREENUP	4990.0	7302.0	46.33
HANCOCK	4918.0	7661.0	55.77
HARDIN	4855.0	6571.0	35.35
HARLAN	4582.0	6822.0	48.89
HARRISON	5241.0	7519.0	43.46
HART	3908.0	5408.0	38.38
HENDERSON	6215.0	8857.0	42.51
HENRY	5005.0	7180.0	43.46
HICKMAN	4833.0	5860.0	21.25
HOPKINS	6460.0	9325.0	44.35
JACKSON	3002.0	4181.0	39.27
JEFFERSON	6608.0	9762.0	47.73
JESSAMINE	4419.0	6794.0	53.75
JOHNSON	4443.0	6611.0	48.80
KENTON	5970.0	8777.0	47.02
KNOTT	3259.0	5265.0	61.55
KNOX	3332.0	4953.0	48.65
LARUE	4358.0	6235.0	43.07
LAUREL	4103.0	5774.0	40.73
LAWRENCE	3934.0	5747.0	46.09
LEE	3237.0	4455.0	37.63
LESLIE	3188.0	4763.0	49.40
LETCHER	4180.0	6150.0	47.13
LEWIS	3341.0	4696.0	40.56
LINCOLN	3845.0	5393.0	40.26
LIVINGSTON	5305.0	7231.0	36.31
LOGAN	4972.0	6852.0	37.81
LYON	4552.0	6405.0	40.71
MCCRACKEN	5957.0	8854.0	48.63
MCCREARY	2575.0	4038.0	56.82
MCLEAN	5107.0	6899.0	35.09
MADISON	4444.0	6269.0	41.07
MAGOFFIN	3146.0	4964.0	57.79
MARION	3579.0	5181.0	44.76
MARSHALL	5103.0	7147.0	40.05
MARTIN	4621.0	7091.0	53.45
MASON	5416.0	7436.0	37.30
MEADE	3532.0	4960.0	40.43
MENIFEE	3045.0	3916.0	28.60
MERCER	5114.0	7247.0	41.71
METCALFE	3431.0	4453.0	29.79
MONROE	3602.0	5154.0	43.09
MONTGOMERY	4725.0	6601.0	39.70
MORGAN	3046.0	4594.0	50.82
MUHLENBERG	5760.0	8254.0	43.30
NELSON	4678.0	6879.0	47.05
NICHOLAS	4307.0	6485.0	50.57
OHIO	5258.0	7219.0	37.30
OLDHAM	5191.0	7074.0	36.27
OWEN	4369.0	5878.0	34.54
OWSLEY	2677.0	3858.0	44.12
PENDLETON	4600.0	6614.0	43.78
PERRY	4324.0	6471.0	49.65
PIKE	4735.0	7439.0	57.11
POWELL	3836.0	4986.0	29.98
PULASKI	4249.0	6209.0	46.13
ROBERTSON	4022.0	5172.0	28.59
ROCKCASTLE	2980.0	4415.0	48.15
ROWAN	3613.0	5445.0	50.71
RUSSELL	3520.0	4771.0	35.54
SCOTT	5302.0	7774.0	46.62
SHELBY	5352.0	7725.0	44.34
SIMPSON	5349.0	7968.0	48.96
SPENCER	4723.0	6854.0	45.12
TAYLOR	4658.0	6459.0	38.66
TODD	4631.0	6029.0	30.19
TRIGG	5112.0	7130.0	39.48
TRIMBLE	4035.0	5426.0	34.47
UNION	5581.0	8042.0	44.10
WARREN	5040.0	7311.0	45.06
WASHINGTON	4145.0	5998.0	44.70
WAYNE	3017.0	4666.0	54.66
WEBSTER	5848.0	9011.0	54.09
WHITLEY	4431.0	6418.0	44.84
WOLFE	3010.0	4471.0	48.54
WOODFORD	5940.0	10128.0	70.51
PURCHASE ADD NO.1	5279.9	7628.6	44.48
PENNYRILE ADD NO.2	5661.4	7676.2	35.59
GREEN RIVER ADD NO.3	5900.2	8468.8	43.53
BARREN RIVER ADD NO.4	4751.3	6555.9	37.98
LINCOLN TRAIL ADD NO.5	4542.3	6136.4	35.09
KIPDA(KY COUNTIES) ADD NO.6	6527.9	9353.2	43.28
NORTHERN KENTUCKY ADD NO.7	5841.8	8477.7	45.12
BUFFALO TRACE ADD NO.8	4432.3	5987.9	35.10
GATEWAY ADD NO.9	4096.8	5588.4	36.41
FIVCO ADD NO.10	5253.8	7428.9	41.40
BIG SANDY ADD NO.11	4616.6	6831.0	47.97
KENTUCKY RIVER ADD NO.12	3839.3	5576.7	45.25
CUMBERLAND VALLY ADD NO.13	4062.2	5857.1	44.19
LAKE CUMBERLAND ADD NO.14	3794.7	5314.6	40.05
BLUEGRASS ADD NO.15	5756.7	8344.6	44.95
KENTUCKY	5263.0	7662.0	45.58

SOURCE: BUREAU OF ECON ANALYSIS, US DEPT COMMERCE; KY ECON INFO SYS

PERCENTAGE CHANGE IN COUNTY-LEVEL PER CAPITA PERSONAL INCOME, 1976-80



The calculation of percentage change in Per Capita Personal Income was done by software of the Kentucky Economic Information System (KEIS). The data from which these calculations were made originate with the Bureau of Economic Analysis, U.S. Department of Commerce. They are stored in the CBANK of the KEIS.

The map was produced on the ZETA plotter at the University of Kentucky Computing Center using the Kentucky Analytical Mapping System (KYAMS). For further information about an interface between the KEIS and KYAMS, contact Roy Sigafus (606-258-4626).

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